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ABSTRACT

The origins, evolution, and current state of Finnish-American academic and professional exchange are reviewed. Personal evaluations by Finnish scholars are provided as follows: "Scholarly Exchanges with Finland: The Benefits to the United States" (Allan A. Kuusisto); "Finnish-American Academic and Professional Exchanges, A History" (Yrjo Blomstedt); "The Implementation of Finnish-American Academic and Professional Exchanges" (Juha Vuorinen, Iris Heikkonen). In addition, views of scholars on specific disciplines are provided: Humanities (Lars Hulden); Philosophy (Jaakko Hintikka); Social Sciences (Erik Allardt, Krister Stahlberg); Natural Sciences (Kaarlo Hartiala, Olli Lehto); Mathematics (Lars Ahlfors); Physical Chemistry (Jouko Koskikallio); Physical Organic Chemistry (Olavi Virtanen); Biochemistry and Molecular Biology (Veikko Nurmikko); Medical Biochemistry (Pekka Maenpaa); Plant Anatomy and Physiology (Sirkka Kupila-Ahvenniemi); Medicine (Kaarlo Hartiala, Lauri Saxen); Physics and Technology (Jorma Routti); Agriculture, Forestry, and Food and Nutritional Sciences (Risto Ihamuotila, Paivio Riihinen, Pekka Koivistoinen, Juhani Pallasmaa). Perspectives on visiting, teaching, or studying in Finland are also provided by three American scholars (Marc Treib, Allan M. Winkler, and Ray Marshall). (SW)

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FINNISH- AMERICAN ACADEMIC AND PROFESSIONAL EXCHANGES:

ANALYSES AND REMINISCENCES

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EDITED BY

WILLIAM COPELAND
MICHAEL HALTZEL
KAARLO HARTIALA
EUGENE HOLMAN
ALLAN KUUSISTO
HANNU RAUTKALLIO
JUHA VUORINEN

TRANSLATIONS BY
EUGENE HOLMAN

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PREFACE

6 Though generally reputed to be taciturn, Finns are eloquent and often expansive in speaking of their exchange experience in the United States. The reflections recorded in this volume are only the tip of an iceberg. But Finland manufactures good icebreakers: and the Finns have, in this book, certainly broken off some important parts of the story. It has often fascinated me to discover on almost any contact with Finland how many Finns in prominent positions — not just in academia, but also in politics and business — have been deeply influenced by an exchange experience with the United States.

It may not be too much to say that this is one of those rare programs that has really helped shape the destiny of a nation. For in the somewhat peripheral and geographically isolated position that Finland found itself in the postwar world, the exchanges with America have proven a vital, perhaps even decisive, ingredient in sustaining the Finnish sense of cultural and ideological identity with western values. It is surely one of the best investments ever made by a free society in support of another society's determination to remain free.

Like the Finnish people themselves, the exchange programs have been efficient and productive without being ostentatious, rhetorical, or full of self-promotion. This volume may help explain to a broader audience something of the importance to Finland as a whole — as well as to almost every walk of life in Finland — of this magnificent, ongoing program.

For various reasons, the postwar Finns did not want German, Russian, or Swedish to be their linguistic vehicle for reaching the broader world. Traditional links with the English-speaking world — through commerce with England and ties of emigration and sentiment with America — would not have been enough. The industry and ingenuity of the Finns gave them a wide variety of new contacts after the war, but the new ones that developed with the United States were of special importance.

Unlike most other European democracies, which had new links with the United States through formal alliance, Finland was strictly neutral and, thus, specially dependent on cultural and educational exchanges. The history of these exchanges is surely one of the happiest small chapters in the annals of such cross-cultural activities.

In strictly scholarly terms, the balance of benefit almost certainly has worked in favor of the Finns in most areas. But I suspect that I am not alone among Americans who feel a very special debt to Finland for the time I spent there. Like many scholars in the Russian field, I benefited immensely from the Helsinki University Library, whose rich holdings in 19th-century Russian publications were the principal resource for my cultural history of Russia, *The Icon and the Axe*. It was marvelous to be sustained by the efficiency and congeniality of a Finnish research facility while working on the unique resources of a former deposit library of the old Russian empire. I also had the privilege of using materials from the former Valamo Monastery, which were relocated in Kuopio in one of the loveliest museums of eastern orthodox art anywhere.

A Fulbright tour in Finland proved, however, to be a continuously educational and enjoyable experience often in unanticipated ways. In part it was because of the special warmth and efficiency of the Fulbright Office under the late, beloved Sven Sjögren (an unforgettable *joulupukki* at those Christmas parties in the dark of December). But each of us also had his or her horizons expanded by discovering some of the distinctive institutions of this resourceful northern people — such as our “park aunt”, the dedicated outdoor baby sitter who took care of our children and permanently altered my feeling about the outdoors. Some of us came to feel the intellectual excitement of struggling — however unsuccessfully — to learn something about Finnish language and folklore or architecture and design. The

mighty players in the age of super-power diplomacy may have more than a little to learn from smaller countries like Finland that have done so much with relatively little. Certainly those of us from America who have been privileged to live among the people of Finland on these exchanges have gained far more than

we can ever repay from our exposure to the dogged industriousness, the artistic flair, and the moral integrity of the Finns.

James H. Billington
Director
Woodrow Wilson International Center for Scholars
Washington, D.C.

FOREWORD

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Despite its peripheral location and relatively small population (4.8 million in 1983) Finland has always been deeply committed to culture and higher education. Its first university was founded in 1640 in Turku, the capital of the country at the time. Endowed with modest natural resources and isolated from the rest of Europe for up to eight months of the year by the Arctic winter, Finland could only advance as a result of sustained efforts of a population living in an environment to which the winds of change traditionally came late.

Today Finland enjoys one of the highest living standards in the world. With its 17 universities, it leads Europe in the ratio of academic institutions to population, a fact that is understandably a source of pride. The level of Finnish science and technology is high, and many of our country's scientists and scholars have achieved preeminence in their fields.

Progress has been especially remarkable during the past four decades, considering the difficult economic and political situation in which the country found itself after World War II. A determined national effort was needed to restore its academic institutions. The task was made easier because of support and encouragement received from abroad, especially from the United States of America.

This year marks the 40th anniversary of the establishment of the League of Finnish-American Societies. The ASLA-Fulbright exchange program between Finland and the United States is commemorating its 30th anniversary in 1983. This milestone of an impressive exchange that has involved more than 3,200 American and Finnish graduate students, professionals and scholars, motivated the preparation of this survey. More than a thousand other Finns and Americans have taken part in other public and private binational exchange programs since the end of World War II. Most of the Finnish authors of articles

have taken part in one of the binational exchanges and have benefited from professional contacts with colleagues from the United States. We are also pleased to include several contributions by American grantees who reminisce about their personal experiences in Finland. The volume briefly reviews the origins and evolution of Finnish-American academic and professional exchange while reflecting for a moment on the present state of this interaction. Finally, the volume includes a number of contributions by Finnish and American scholars who express their personal evaluation of Finnish-American academic and professional exchange.

Although the private Finnish Foundation for Research in Higher Education and Science Policy and the United States Educational Foundation in Finland were responsible for the practical work of compiling this volume, the effort has had extremely broad support from the Finnish academic and professional community.

The doors of American universities and colleges have remained open to Finns for more than three decades. Specialists and scholars from the United States and Finland have fashioned a fabric of friendship and mutual understanding that serves each country well. This volume is dedicated to this noble interaction between Finland and the United States, an interaction that would not have been possible without the support of far-sighted statesmen and scholars in both countries.

Kaarlo Hartiala

Chancellor, Turku University

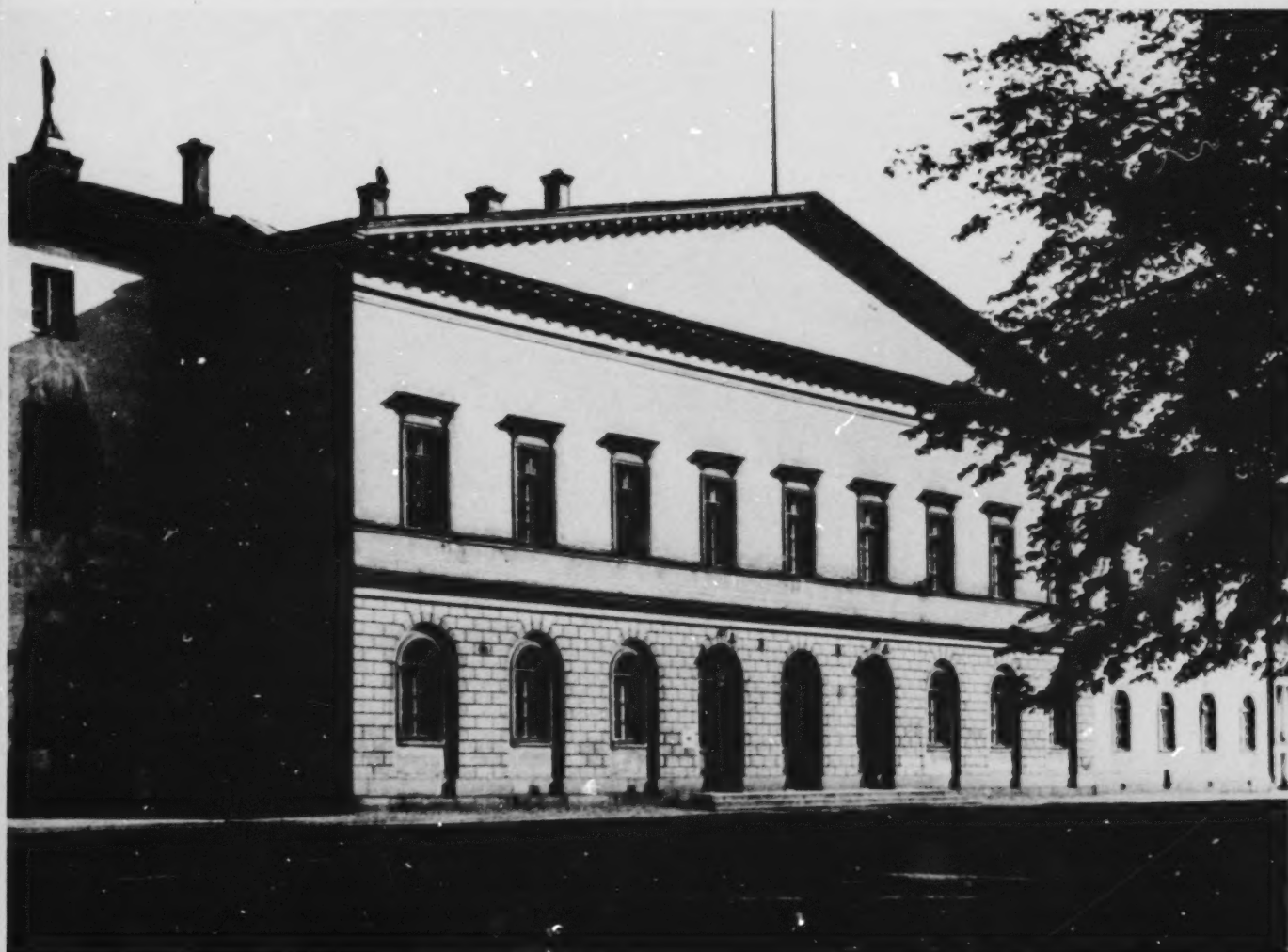
President, Council of the Foundation for Research in
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September 15, 1983

*The Old Academy Building, Turku, 1802—15.
Architects: Carl Christoffer Gjörwell and Charles Bassi.*

The Old Academy building is the first building in Finland to have been built in the Empire palace style. The center of Helsinki as well as the townscape of many Finnish towns were later to be dominated by Empire style neo-classicism. Gjörwell was the city architect of Stockholm, and Bassi, who directed the construction of the Academy, also came from Sweden. He later became the first official Comptroller of Public Buildings in Finland.

Photo: N. E. Wickberg



SCHOLARLY EXCHANGES WITH FINLAND: THE BENEFITS TO THE UNITED STATES

ALLAN A. KUUSISTO

President Emeritus

Hobart and William Smith Colleges

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In the nearly four decades since Senator William Fulbright's exceptional legislative initiative led to the scholarly exchange program which bears his name, the United States foreign educational interchange programs have become low key, low cost, yet effective vehicles for developing a sense of shared community between American and foreign scholars. These have strengthened mutual understanding and support for one another's national interests. This is particularly evident in the scholar exchange relationship between the United States and Finland. In this, the thirtieth anniversary year of the implementation of the Fulbright program between the two countries, it is useful to see how the scholarly exchange with Finland has evolved into a subtly valuable vehicle for maintaining American interests where traditional Cold War devices of foreign policy could only provide disastrous results.

Finland's relationship with the United States, perhaps more than with most countries, has been essentially cultural and economic, and not military or even political in the usual sense of trying to line up support for one another's policies. Oriented strongly Westward by its historic evolution as a long-time part of the Swedish empire, the country, by its long common border with Russia and its century of Russian imperial domination (1809—1917), has been geopolitically governed by a primary need to look to its Eastern flank. The conduct of Finland's foreign policy since independence was achieved in 1917 has been a learning experience in how to survive with the Soviet Union as its neighbor. That independence has been safeguarded after two wars plus numerous threats is a result of profiting from one's errors and learning to "live and let live" with a super power neighbor. This has left little room for participation in Western confrontational tactics *vis à vis* the Soviet Union. The emphasis has been on neutrality, strictly and rigidly enforced, and on a national self-discipline to do nothing that needlessly

arouses Soviet displeasure. The consequence of such a policy has been retention of independence, fragile though it may seem to be from time to time.

Finland, as the easternmost bastion of democracy in Europe, is not unimportant to the United States. Yet Finland's carefully constructed neutrality and its fastidious and conscientious concern for correct relations with the Soviet Union have inevitably placed it beyond the main thrust of American cold war policies or likely military support in the event that Finnish-Soviet relations sour. The American role is to do nothing to shake the precarious equilibrium in the Finnish-Soviet relationship. For American policy makers, this calls for unusual forbearance from overt anti-Soviet actions and for strict observance of the special arrangements that Finland has made for peaceful coexistence with the Soviet Union. American policy toward Finland has thus been prodded toward emphasis on non-threatening devices that would enhance mutual understanding and good will, thereby helping the Finns in their special efforts to strengthen their national resolve to remain free and democratic.

Finnish-American relations between 1917 and 1939 provide a basic underpinning for the kind of delicate diplomacy of good will that both countries needed to construct in their relationship after World War II. Of primary importance and a fact of life learned by every Finnish school child is that the United States Relief Administration under Herbert Hoover's leadership in 1919 came to the rescue of a country devastated by war and starvation. This act of mercy was not to be forgotten. Americans, in turn, recall that Finland became the only country to remit annual payments on the loan occasioned by the Hoover relief. A sense of mutual trust and appreciation had begun to emerge that would help both countries adapt to the post-World War II changes.

Senator Fulbright's 1946 amendment to the War

Surplus Act of 1944 empowering war-weary countries to purchase American military surplus goods with their own currencies and use these for scholarly exchanges — the Fulbright program — had Finland in mind as a potential participant. This participation, however, was not to materialize until the two countries signed an executive agreement to this effect in 1952. Meanwhile, two significant developments in terms of the Finnish-American relationship had occurred which were to underscore the particular genius of the Fulbright program and of scholarly exchanges generally in the interrelationship between the two countries.

The first development was that Senator Fulbright's amendment, introduced in August 1945, was not intended as a Cold War device — it antedated the deterioration of East-West relations. Senator Fulbright believed in international scholarly exchanges; he had himself been to England as a Rhodes Scholar. Further, he believed that the country should avoid the kind of anti-Americanism that swept through Europe after World War I when the United States tried to collect its war debts. A formula to avoid the latter through a specially attractive scheme to tie purchases in domestic currencies of needed jeeps, electric generators, machinery, and the like, to scholarships that would enhance friendly relations seemed to combine pragmatism and ideology. It was hoped that the Soviet Union might even want to participate in the program. That the Fulbright program ultimately got caught up in the barbs and arrows of the Cold War does not erode the importance of its basically anti-confrontational nature. This is a crucial factor in considering the program's special applicability to Finland.

Secondly, when Finland continued to make payments on its World War I loan in difficult economic conditions after 1945, American support grew in favor of special acknowledgement of this unique sense of national responsibility. In 1949, Congress in a joint

resolution of the two houses decided that all further payments of the loan would be used for grants for Finnish citizens to study, teach and carry out research in the United States, and for American citizens to pursue similar activities in Finland. The amount of the loan still unpaid in 1950 when the program began was \$ 13 million. Annual payments of \$ 350,000 were to continue until 1984 when the debt was to be paid off. The program became known as ASLA, Grants from the American Loan to Finland.

ASLA had thus been in existence two years when the United States and Finland signed the executive agreement extending the Fulbright program to Finland. The two programs were special in their major reliance on war debt payments approved by unique Congressional action. Particularly attractive to Finns was the clear advantage of being able to send their young scholars to American universities and institutes at a time when Finnish institutions were badly underequipped and outdated after years of deprivation. The opportunity to take advantage of up-to-date facilities and scholarship was to reduce dramatically the learning and research gap imposed on the nation by a decade of war and post-war suffering and deprivation. This was most clearly evident in the natural sciences and in related laboratory areas. The effect of the ASLA and Fulbright programs on Finnish scholarship was dramatic and comprehensive. Articles elsewhere in this volume provide compelling evidence of the scope and depth of the Finnish debt to the United States in developing its own scholarly community.

As a small nation, Finland is clearly not able to provide the American scholarly community benefits of the same magnitude as the United States does for Finland. Yet Finnish scientists as members of research teams with their American hosts have provided distinct contributions to projects of mutual concern. Application in Finland of theories or methods developed in the

12 United States has provided a transnational testing place for corroboration of these academic initiatives. Further, Finnish society and culture provide a rich setting, sufficiently different from anything back in the United States, for the broadening and enhancement of individual careers. Scholarly books and monographs published by Fulbright scholars to Finland indicate the value of the experience abroad for American scholarship in a spectrum of disciplines. Some areas in which Finnish expertise is internationally recognized, such as architecture and wood technology, have contributed in distinctive ways to American scholarship.

The clearest benefit to the United States, beyond the obvious gains to the individuals involved, has been to the American government itself in extending an image of a superpower capable of constructing and applying a "soft" policy based on developing good will and understanding through cultural interchange. In developing this policy, the United States has gained experience in a subtle and delicate diplomacy of shared experience in the teaching and learning profession. This

has perhaps created a sense of community between itself and its partner nation that is more deep rooted and constructive than any arms shipments or alliances could ever effect.

Indicative of the strength of bonds tying Finland and the United States was the agreement between the countries at the time of the American Bicentennial Celebration for Finland to remit its outstanding World War I debt to the U.S. in one payment (\$ 2.8 million), and the agreement to place this money in a bilateral trust fund to finance the Finnish-American scholarly exchange permanently. This can be regarded as a generous gift by the United States to Finland. Perhaps it is best regarded, however, as American expression of its own appreciation of how well its cultural foreign policy has succeeded in its bilateral approach to developing a genuine shared community of interest with another democratic society. In this context the thirtieth anniversary of the Fulbright program in Finland marks a distinctive success chapter in American foreign policy.

*Main Building of the University of Helsinki, 1828—32.
Architect: Carl Ludwig Engel.*

C. L. Engel was the master of the Empire Style, the Neo-classical style of the early 19th century, which originated in St. Petersburg. Helsinki became the capital of Finland in 1812 and a representative centre had to be created for the autonomous Grand Duchy. The plan for the new capital was made by Johan Albert Ehrenström, and the main buildings around the monumental Senate Square were designed by the German-born architect C. L. Engel. The University is located on the western side of the square opposite the Senate Building. Engel succeeded Bassi as Comptroller of Public Buildings, and he designed a very large number of churches and other public buildings throughout the country.

Lithograph by F. Liewendal in 1859.



FINNISH-AMERICAN ACADEMIC AND PROFESSIONAL EXCHANGES, A HISTORY

YRJÖ BLOMSTEDT

Department of History

University of Helsinki

Chairman, Board of the Foundation for Research in Higher Education and Science Policy

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We Finns are proud of our ancestors who, their modest number notwithstanding, are nevertheless an integral part of the earliest stratum of mass immigration to the United States. The first Finnish-Americans arrived along with Swedish immigrants to the colony of New Sweden, established along the shores of the Delaware River during the seventeenth century. Finns enjoy hearing the story that Philadelphia was supposed to have been founded on the same cape where some early Finnish settler had built his sauna. The Finns were soon absorbed into the surrounding population, but one of their illustrious descendants was John Morton (1724—77), one of the signers of the Declaration of Independence. His great grandfather, who died in 1716, was Morten Mortensen of Asmundsland, listed as born in "Finland in Sweden".

The independence of the United States stimulated ideas in Finland just as it did in other countries. Colonel George Magnus Sprengtporten (1740—1819) attempted to offer his services as a mercenary to the Rebellious Colonies in addition to dreaming of an independent Finnish republic on the American model. Duke Charles of Södermanland, brother of the Swedish King Gustavus III, wrote in 1784 that in Sprengtporten's "restless mind some strange and peculiar plan was brewing, and that the excellent example provided by the independence of the American States is stimulating his nature, prone to intrigue, to attempt to cause the same type of disturbance in Finland." Thus the message that America sent to the world did not go unnoticed in Finland, where it influenced the formation of a separate national identity. The maxim "no matter what the reasons for their dissatisfaction, colonies have the right to separate from their mother country" (Abbé Raynal) applies to some extent to Finland, which was dissatisfied with Swedish rule. The idea did not, however, meet with any wide support, even though Sprengtporten indisputably influenced the fact that when Finland

became a part of the Russian Empire in 1809 it did this as a separate state, a grand duchy.

Only one of the early Finnish-American contacts was scientific, but as such it was all the more significant. Urged by his great teacher Carl von Linné, Peter Kalm (1718—79) professor of Economics (i.e., the practical applications of botany, zoology, chemistry, and mineralogy) at the old academy at Turku, made an extensive research trip to America from 1748 to 1751. The trip was part of efforts made by the European scholarly community to obtain reliable information about natural conditions prevailing in exotic realms and to identify plants there that might be of practical value. His attempts to introduce native American plants to Finland met with failure, but the extensive account he wrote of his journeys is characterized by accuracy, breadth, and detail, thus providing an interesting and varied picture of colonial America. The account was published in Sweden during the years 1753—61; the full volume was subsequently translated into English, German and Dutch, and portions of it into French.

The next contacts, too, involved specific individuals. The Finnish engineer and officer August Frederik Soldan (1817—85), sent to Giessen by the Russian military authorities to study chemistry, was so carried away by the Revolution of 1848 that he was unable to return to his position in Russia. Through the intervention of Americans he had met in Germany he found asylum in the United States, using the pseudonym Augustus Dalson. He is probably the first Finn to have been given a position as a teacher in the United States. In 1849 and 1850 he taught chemistry at Delaware College, and from 1850 and 1851 he was assistant instructor in chemistry at Harvard. Subsequently, he served for a few years with the Pennsylvania Geological Survey. Soldan was allowed to return to Finland in 1858, and he became the director of the mint. Under his direction, a small group of

Americans who were familiar with the German translations of the *Kalevala* were able to familiarize themselves with the Finnish national epic on a more intimate basis. The translations of the *Kalevala* produced by John Addison Porter and Thomas Conrad Porter were inspired by Soldan.

Throughout the 19th century Finnish scholars looked almost exclusively to Europe when seeking contacts with the leading experts in their field. Depending upon the field, Germany, France, or England served as the natural focus of these efforts; contacts with Sweden, the old mother country, as well as with Russia, of which Finland was a part at the time, were firmly established. Only an occasional Finnish scholar is known to have paid the United States as much as a brief visit. Jacob August Estlander (1831—81) professor of surgery, made a trip to the United States in order to participate in a conference in his field which convened in Philadelphia in 1876. It is noteworthy that even he considered his trip to be of such an extraordinary nature that he deemed it appropriate to write an article in one of the periodicals of the time telling of the conditions in the United States from the standpoint of the general reader.

The American system of schools and public education were objects of particular interest in Finland. Two public figures who are known as early participants in the struggle for coeducation in Finland, Mikael Soininen (earlier Johnson) (1860—1924), later to become the director of the Central Board of Education and Minister of Education, and Karl Teodor Broberg (1849—1901), a Swedish speaking priest and headmaster of the first coeducational school, both paid visits to the United States at the beginning of the 1880's with the expressed purpose of thoroughly familiarizing themselves with the American system of public education.

During the years immediately preceding and

following the turn of the century, the United States attracted vast numbers of Finnish immigrants. All in all, approximately a third of a million people, some 10 to 15 percent of the entire population, migrated from Finland to the United States. Basically, this was a question of a rural population living in dire economic straits going off to seek its fortune in the western Eldorado. For the most part, these individuals continued to eke out a meager living in the arduous jobs offered by the mining and forest industries, or they worked as fishermen. The most successful of them succeeded in acquiring a homestead or a farm to cultivate. The group did, of course, include a few individuals who had received more than the rudiments of education, but there were no genuine scholars among them.

When Russian repression against the Finnish people began to increase, and when leaving the country became the easiest way of avoiding illegally imposed military service, a group of young men of draft age, with a few university students among them, set out for the United States. A few of the "separatist politicians" exiled from Finland also made their way to the United States. However, from a purely practical standpoint, contacts with the world of scholarship remained sporadic: Leonard Borgstrom (1876—1954), a mineralogist who was later appointed to a professorship at the University of Helsinki, taught in Kingston, Canada, at Queens University during 1904—05, and he was able to conduct some research on the American side of the border as well. A few Finnish physicians went to the United States at the beginning of the twentieth century but, as far as is known, in only one case did this involve anything which could be called actual scientific or professional exchange. Dr. Östen Holsti (1887—1952), who worked as a physician in Portland, Oregon, during the second decade of the twentieth century, returned there in 1950 to assume a

professorship in internal medicine after retiring from his chair at the University of Helsinki.

After Finland became independent, the situation began to change somewhat. Finnish scholars were actually more interested in geological peculiarities to be found in the United States than in the research being conducted at American universities. Of the Finnish specialists in the natural sciences who visited the United States during the 1920's, the following should be mentioned: Pentti Eskola (1888—1964), a geologist who visited the United States in 1921; Väinö Auer (1895—1981), a geographer whose visit was in 1926, Uuno Saalas (1882—1969), whose visit was in 1928, and plant breeding specialist Olavi Meurman (1893—1969). Of the physicians who visited the United States, mention should be made of Hermann Wahlberg (1895—1951), whose visit took place in 1926—27.

Since the 1920's, Finns have been recipients of Rockefeller Foundation grants for scientific research, but most of these grantees went to Europe, with Vienna, Prague, and Paris being particularly popular.

During the 1930's there was a noticeable increase in interest, particularly among physicians, in studies in the United States. Kalle Kallio (1899—), Eero Tammissalo, a dentist, (1892—1977), Unto Uotila (1910—1977), Bertel von Bonsdorff (1904—), Ilmari Vartiainen (1905—), and Alvar Wilska (1910—), all of whom were later to assume professorships, went to the United States to study before the Second World War; Wilska went in 1940—41 after the Winter War. With respect to specialists in the natural sciences, Aarno Kalela (earlier Cajander) a botanist, visited the U.S. in 1931, Unto Vartiavaara (1904—), a microbiologist, visited the U.S. in 1939. Jaakko Tuominen (1909—), a radio astronomer, made a visit in 1938—1939, Eino Saari (1894—1971), a specialist in forestry, visited the U.S. in 1933. Lars Ahlfors (1907—) was appointed to a teaching position at Harvard, but he returned to

Helsinki to assume a professorship in 1938. From 1948 onward he was back at Harvard.

I still retain a vivid memory of Yrjö Reenpää (1894—1976), honorary supervisor of my student nation (fraternity) and professor of physiology, when he told us of his experiences in the United States after having returned from a stay there. In some respects it seemed almost as though he were telling of the conditions on some distant planet. Finns only knew America from the movies. Nevertheless, it was just at that time that changes were taking place that would result in closer contacts between the American and Finnish communities.

In 1943, on the first of July, the Finnish-American Society was established in Helsinki. In time, this was to develop into a nationwide organization, the League of Finnish-American Societies, with more than 60 000 members. The date of its establishment was one of the most difficult in the recent history of our country: Finland was at war with the Soviet Union and fighting on the side of Germany as a cobelligerent. Moreover, the war had already reached its turning point. In order to bring pressure on Finland, England had threatened to declare war on the country, and it carried out this threat in 1941. In 1942 the United States had recalled its minister and closed its consulates in Finland. In the March of 1943 the United States had offered its good services for the purpose of mediating a truce between Finland and the Soviet Union, but the Finnish government decided not to act on the proposal without informing Germany. Finland was forced to express a negative stance on this issue. Pro-American circles in Finland feared that relations with the United States, already severely strained, would break down altogether.

Those circles which had come to be called "the peace opposition" warmly supported the ideas expressed by Ensio Hiitonen (1900—1970). He was a doctor of law, who had been relieved of his position in the Ministry of

Foreign Affairs the previous year because of his sympathies to the Allied cause. Hiitonon proposed that a Finnish-American Friendship Society be established to underscore a widely held view that the American-Finnish connection must be maintained at all cost. Both the Society's first vice-chairmen, C. O. Frietsch (1901—73), and Uno Hannula (1891—1963) came from the ranks of the Peace Opposition. The chairman was Eljas Erkko (1895—1965), a newspaper publisher who had served as foreign minister in 1938—1939. With the exception of the extreme Right, all parliamentary parties were represented in the governing body of the Society.

The confidence the Finns had in the new friendship society is perhaps best reflected in the fact that news reports of its establishment received comment in the entire Finnish daily press with the exception of those newspapers expressing the views of the extreme Right. This favorable attitude irritated Germany, resulting in severe pressure on Finland. The American government, for its part, instructed its *chargé d'affaires* in Helsinki not to participate actively in events arranged by the Society; he did, however, have permission to attend its functions.

When Finland initially demonstrated itself to be incapable of extricating itself from the war, its relations with the United States were subject to an even greater strain. In the summer of 1944 the United States broke off diplomatic relations with Finland.

Within a few months, however, Finland had succeeded in leaving the war, and the Finnish-American Society once again had the opportunity to pursue its goals. The conditions in Finland were grim. The future seemed insecure, war reparations gobbled up any resources that were available, and there were few contacts abroad. There were virtually no opportunities to pursue scientific research in a largely devastated Europe. Hence, eyes turned, as if by

instinct, to the United States. It was, after all, the one victorious power that had not felt the direct fury and destruction of the war. Education and science flourished there. The United States became the new Mecca of scholarship.

Already in December 1945 the Finnish-American Society had the opportunity to offer the first four scholarships for study in the United States. The society regarded the establishment of a large exchange of scholars, students and knowledge as one of its major tasks. However, there were similar plans elsewhere, too. Professor V. A. Heiskanen (1895—1975) of the Helsinki University of Technology, later the head of the worldwide gravimetric survey of the globe at Columbus, Ohio, visited the United States in 1946 for the purpose of re-establishing contacts with Americans of Finnish descent. In conjunction with this trip he observed how important scientific exchange was. Upon his return to Finland he proposed to the Finnish Cultural Foundation, of which he was a board member, that funds be procured to establish a Finnish-American system of scholarships. The Cultural Foundation appointed a committee which included Heikki Waris (1901—), Jussi Saukkonen (1905—) and Arvo Puukari (1912—70) as well as Heiskanen himself. At the recommendation of this committee a meeting was convened at which representatives of different foundations, universities and other institutions of higher education, and scientific institutes and societies decided to establish a special Finnish-American Cultural Commission. The Finnish government supported the project by appropriating funds to the University of Helsinki and other institutions to be used for funding such scholarships. Private foundations and institutions earmarked scholarships for study in the United States. The Finnish Cultural Foundation, for instance, provided four major grants for this purpose.

The rank-and-file of the Society, however, was quite

disturbed by the rivalry of the two organizations. As the results of negotiations, assisted by Thomas A. Sebeok (1920—), a faculty member and later professor at Indiana University, the Finnish-American Cultural Commission and the Finnish-American Society were able to resolve their differences and combine their efforts. The rivals together formed a common organ, The Finnish-American Committee on Study and Training in the United States. In order to begin its work, the Committee received financial support from the Cultural Foundation. Nevertheless, it has functioned as a branch of the Finnish-American Society since its establishment in 1947. Its chairmen have been professor Eino Saari, from 1947 until his death in 1971, professor Ole Reuter (1906—) from 1971, to his resignation in 1981 and professor Teuvo Kohonen (1934—) from 1981 to the present. Its secretary general from the very beginning has been Bengt Broms (1917—).

Before we begin to describe the evolution of exchange program, it is worthwhile looking back a few decades earlier to a time in Finnish history that was as grim as the end of the 1940's. At the end of the First World War Finland was on the verge of anarchy after having received its independence from Russia subsequent to and because of the Bolshevik October Revolution. The economy, which had been dependent on the Russian market during the war years, was in a severe crisis, imports and exports having stagnated. With respect to basic foodstuffs the country was in a catastrophic state, and it suffered a partial famine.

The revolution begun by the Socialists in 1918 was followed by a civil war that, in turn, resulted in the victors interning several thousand prisoners of war in the misery of concentration camps. Since this was accompanied by Finland seeking a place for its foreign policy in the shadow of Imperial Germany, there was little cause for rejoicing at the end of 1918. Those Finns

who were ready for a new orientation turned to Herbert Hoover (1874—1964), director of the comprehensive American Aid Program, with the hope of negotiating for aid in the procurement of basic foodstuffs. Hoover's assistant, H. Alexander Smith (1880—1966) also familiarized himself with the situation in Finland. Through the American Relief Administration, Finland was able to purchase wheat and other products from the United States Grain Corporation. Short-term loans to be repaid by the end of June, 1921, were also granted for wheat purchases. These amounted to a total of some 8.8 million dollars. During the period in question, the fluctuation in the exchange rate of the dollar was catastrophic from the standpoint of Finland. In 1919 the rate was some 11 marks to the dollar, but by 1921 it had reached 61 marks. The country's economic difficulties were of such a magnitude that it was not even able to pay the interest on its war debt.

In the spring of 1922 information was received about a law approved by the American Congress according to which short-term foreign war debts could be converted into long-term loans with their interest being correspondingly reduced. While Finland was attempting to benefit from these repayment adjustments, the United Kingdom succeeded in negotiating still more advantageous conditions that were then applied to Finland as well in the name of fairness. In 1923 the short-term loans were converted with their new form stipulating the following terms: after Finland had paid its overdue interests and amortized the debt by 1 million dollars, the balance of the loan was fixed at 9 million dollars. The country was given 62 years to repay this sum, that is to say, until 1984. During the first ten years interest was to be only 3 %; this was to be increased to 3½ % from the year 1933. The conversion was approved in this form by the U.S. Congress and by the Finnish Parliament in 1923.

Finland paid the agreed amortizations and interest on the date they fell due. Payment took place with clockwork-like precision. Not long afterwards, during the world financial crisis of the late twenties and early thirties, the other European nations with debts to the United States defaulted on these payments. Finland, in contrast, continued to pay its debt without compromising itself. It became known as "the country that pays its debts." That term brought Finland immense good will and created an image of a nation that fulfilled its obligations and responsibilities without reneging.

Interest payments and amortizations continued during the years of the Second World War in spite of the country's difficult economic situation. Even in these conditions the debt was to be serviced in accordance with the agreed upon conditions.

According to H. Alexander Smith, who had participated in the loan project ever since the beginning, this performance was something so extraordinary that the heroic Finnish people had to be especially commended. Smith, who was a Senator from New Jersey during the post-war years, proposed to the Senate that it pass a law according to which the interest and repayments Finland continued to make should be used to advance cultural exchange between the two countries. In 1949 the U.S. Congress approved a law (Public Law 265) which stipulated that the annual payments Finland made should be returned to it to be used as scholarships for its citizens to come to the United States to study and conduct research. These funds could also be used to purchase research equipment, books and needed instruments. In addition American scholars could finance their research in Finland through these funds. This bilateral scholarship system is unique in the history of American scholarship programs.

The scholarships which originated in this manner

were to be given the Finnish name *Amerikan Suomen Lainan Apurahat* (ASLA) — Grants from the American Loan to Finland. The selection of grantees was entrusted to the already functioning Finnish-American Committee on Study and Training in the United States. ASLA benefited greatly from the Fulbright program which had been in existence since the early fifties. The Fulbright scholarship program has its origins in the immediate post-World War II period when the United States had military surplus abroad for which it had no more use. Shipping it to the United States would have been expensive; also selling it on site and below cost to interested buyers would have been difficult because of currency considerations: prospective purchasers could only offer their own weak currencies as payment. In August, 1945, J. William Fulbright (1905—), Senator from Arkansas, made a proposal to the U.S. Congress that turned out to be an ingeniously simple solution to this problem. As a supplement to the Surplus Property Act of 1944, the purchasing countries were to be granted long-term credits with the interest and repayments to be used for the maintenance of cultural, professional, and academic exchanges. The purchasing country could send its researchers to the United States and, reciprocally, the work of American scholars in the purchasing country would be financed. The Fulbright program commenced in 1946; Finland was able to participate in 1952. The first Fulbright professors arrived in Finland from the United States 30 years ago, in 1953.

The agreement between the United States and Finland also included a clause calling for the establishment of a separate United States Educational Foundation in Finland. The Foundation's stipulated function was to administer the exchange program in Finland. In practice this meant to find institutes of higher learning in Finland that would host those Americans desiring to work in the country as Fulbright

professors, assist them in finding accommodations and in other practical matters, and pay their maintenance. Since the Fulbright funds were in Finnish marks they could also be used to support recipients of ASLA scholarships in the form of travel grants. In the case of graduate students the cooperating agency in the United States has been the International Institute of Education in New York. Today the Council for International Exchange of Scholars in Washington, D.C. performs a similar service for Senior Fulbright lecturers and researchers. The Board of Directors of the United States Educational Foundation in Finland (USEF) serves as the highest decision-making body of the ASLA-Fulbright exchange program. Chairmen of the Board of this foundation have been the managing director of Finnish Foreign Trade Association Ilmari Voionmaa (1898—1976) from 1952 to 1970, the American diplomat Edmund R. Murphy (1913—) in 1970—71 and the American businessman John E. Tholstrup (1936—) in 1971—74. Professor Tauno F. Mustanoja (1912—), former head of the English Department of the University of Helsinki, has served in this capacity from 1974 on.

The financial basis of the Fulbright agreement, which was approved between the United States and Finland on July 2, 1952, has been supplemented at different periods. The debt incurred in the purchase of surplus has already been repaid, but other funds have been made available. In 1950 the repayments on a loan granted a few years earlier for the purchase of agricultural surplus were added to the Fulbright monies.

In 1976 as part of the contribution to the celebration of the Bicentennial of the United States, Finland repaid the entire balance of its loan of 1923 in one installment. This payment became the basis of a separate Finnish-American Educational Trust Fund to be used for financing the exchange program proposed by the United States Educational Foundation in Finland. Since 1977

the interest from the Trust Fund, supplemented by equal contributions from the two governments, has continued to finance studies, research, teaching and other educational activities of American citizens in Finland, as well as for similar activities pursued by Finnish citizens in the United States.

While Finnish-American professional and academic exchanges have primarily rested on agreements made between the two governments, Finnish and American scholars have also obtained funds from other sources in order to finance their trips to each other's country. The Rockefeller Foundation, which has been granting scholarships to Finns ever since the 1920's, is the first of the private American foundations that should be mentioned. During the initial stages these foundations primarily financed research conducted in different fields at European scientific centers. After World War II, however, the Rockefeller Foundation financed trips made by Finnish scholars to the United States. The same foundation has also supported theoretical medical research at Finnish institutes of higher education by granting funds for the full financing of especially important research projects. The National Institutes of Health have also financed comprehensive research projects carried out in Finland.

The W. K. Kellogg Foundation has significantly supported research in the fields of agriculture, forestry, and food production. The scholarships it has granted have enabled Finland to be brought up to date and kept abreast of latest developments in several disciplines within these fields. The Ford Foundation's so-called "leader grants" that were awarded in the late 1950's and early 1960's must be singled out for particular value to Finnish scholars.

Other foundations in the United States whose activities are particularly concerned with Scandinavia and Finland, and whose contribution to the support of Finnish scholarship has been of great importance

include the Thanks to Scandinavia Foundation, established by Jewish Americans as a token of their gratitude to the Nordic countries. Both the American-Scandinavian Foundation, which made the decision to include Finland in its operations in 1950, and the Finlandia Foundation have played important roles in Finnish-American cultural exchange.

Organized exchanges between American and Finnish institutes of higher education were placed on a firm and continuing footing during the 1960's. They are usually based on cooperative agreements such as that which exists between the University of Wisconsin and the University of Helsinki. Within the framework of this agreement a scholar from each of the two universities visits the other for a period of approximately four months in alternate years. This exchange has had some important concrete results. The leading Finnish specialists in various fields — frequently scholars who have done graduate or post-graduate research in the United States — repeatedly receive invitations from different universities to teach there.

In turn, during 1976, the American Bicentennial year, the University of Helsinki established a professorship in American Studies. This professorship — The Bicentennial Chair in American Studies — was first intended to be of limited duration, but in 1977, the sixtieth anniversary of Finnish independence, it was made permanent. Through it, American scholars teach at the University of Helsinki as holders of the Bicentennial Chair in American Studies, and in so doing, provide Finnish scholarship new directions in both content and methodology. Subsequently, the Bicentennial graduate student fellowship has been added to enable a Finnish graduate student to study in the United States.

To some extent, Finnish sources have provided financing for scholarly and professional exchanges. The Finnish State Committee on Science Administration

(The Academy of Finland) has significantly supported this exchange by providing funds for research conducted in the United States by researchers and research assistants. Large private Finnish foundations such as the Finnish Cultural Fund, the Wihuri Fund, the Eemil Aaltonen Foundation, the Gyllenberg Foundation, O. Huttunen Foundation and the Sigrid Juselius Foundation have also enabled many Finnish researchers to travel to the United States for study or research.

There is no denying the fact that recessions, increases in costs, and the difficult financial position of Finland have occasionally placed a heavy burden on Finnish-American scientific cooperation. As a result, a considerable degree of fluctuation has characterized the development. During the first period of ASLA scholarships, in 1950—1951, there were 40 graduate students and 10 leader grantees in the United States financed from this source. In addition, there were grants which provided Finnish teachers working in different levels of the school system the opportunity to become familiar with the American educational system. The peak academic year for ASLA scholarships was 1962—63, when 166 Finnish students and teachers visited the United States on ASLA scholarships. Since then the number of people involved has been considerably smaller. During the academic year 1980—1981 there were only 18 scholarships, while during the year 1983—1984 it has been possible to grant 5 full ASLA scholarships for research, 7 short-term scholarships and 12 graduate student fellowships.

As the exchange program takes note of its 30th anniversary, it is worth recalling that some 2 500 Finnish scholars, ranging from established university teachers to young students, have studied in the United States financed by ASLA-Fulbright scholarships. During the past thirty years some 600 American university teachers and researchers have visited

Finland. When the program began, about thirty Americans were able to participate in the program annually; more recently the number has been reduced to approximately 6—8 graduate students, 5—7 lecturers, and 2—4 researchers. A considerable number of visiting Americans are humanists, meeting Finland's need for instruction in American history and literature. Finland is also a magnet for American scholars because of its special research collections. The Slavic Collection of the Helsinki University Library, for instance, which

contains a copy of virtually everything printed in the Russian Empire during the 19th century, is the only one of its kind outside of the Soviet Union.

Because of its American contacts Finnish scholarship is now better able to adjust to the challenges of a post-industrial information society. For this alone, we owe a debt of gratitude to the Finnish-American exchange of scholars and professionals, whose anniversary milestone there is every reason to commemorate — with the utmost gratitude — in this year of 1983.

*Southwest Finland Tuberculosis Sanatorium, Paimio,
1929—1933.
Architect: Alvar Aalto.*

The Sanatorium is internationally one of the key monuments of the Modern Movement. Towards the end of the 1920's Finland aspired for modernity, urbanity and industrialization, and modern architecture quickly and widely became accepted as a symbol of progress. The young Alvar Aalto took the leading role in Finnish architecture after Eliel Saarinen had emigrated to the United States in 1923 after having won the second prize in the famous Chicago Tribune Tower Competition. The Sanatorium is an optimistic and inspired masterpiece of functionalist design which has gradually been converted to a normal hospital.

Photo: Kari Häkli



THE IMPLEMENTATION OF FINNISH-AMERICAN ACADEMIC AND PROFESSIONAL EXCHANGES

JUHA VUORINEN

and

IRIS HEIKKONEN

Foundation for Research in Higher
Education and Science Policy

24 Purpose and research procedure

In February 1983 the Foundation for Research in Higher Education and Science Policy in Helsinki sent a questionnaire to all the professors and associate professors attached to Finnish universities and research institutes. The purpose of this inquiry was to determine the manner in which Finnish-American academic and professional exchanges have been realized. The questionnaire attempted to determine not only the nature of the experiences of Finnish professors in bilateral exchanges, but also to obtain a concrete picture of their expectations and desires for its further development.

Stated more precisely, answers to the following questions were sought:

1. How comprehensively and in what manner have Finnish professors working in different fields participated in Finnish-American exchanges?
2. To what extent and in what form have American scholars spent time at Finnish institutions of higher education and research institutes in the capacity of research scholars, teachers, or post-graduate students?
3. What kinds of problems and possible paths of development do Finnish professors see in the Finnish-American exchanges?

Considered in the inquiry were only those trips made for purposes of research, teaching, and graduate education that lasted for at least two months. Trips of shorter duration can, of course, also have a marked effect on the advancement of learning. Nevertheless, for the purposes of this report they were considered to be conference trips or short-term scholarly visits and not part of an actual academic and professional exchange.

The inquiry was sent to everyone who had been appointed to and was functioning in a professorship or associate professorship at a Finnish institution of higher education or state research institute, as well as to

everyone who was either the actual or acting holder of such a position in January 1983. This meant a total of 1661 persons.

The inquiry was returned by 1395 professors, or 84 % of those questioned. The authors of this study regard the answers received as representative of the views of the entire body of Finnish professors.

Associate and full professors are the scholars who play the most significant role in the advancement of knowledge. They are also the people responsible for training the next generation of research scholars. Additional information could naturally have been obtained from the junior members of the teaching staffs of the universities (an additional 4 500 individuals), as well as from other people involved in research. Considerations of time and resources, however, prevented the inquiry from being broadened to include these groups.

Finnish scholars in the United States

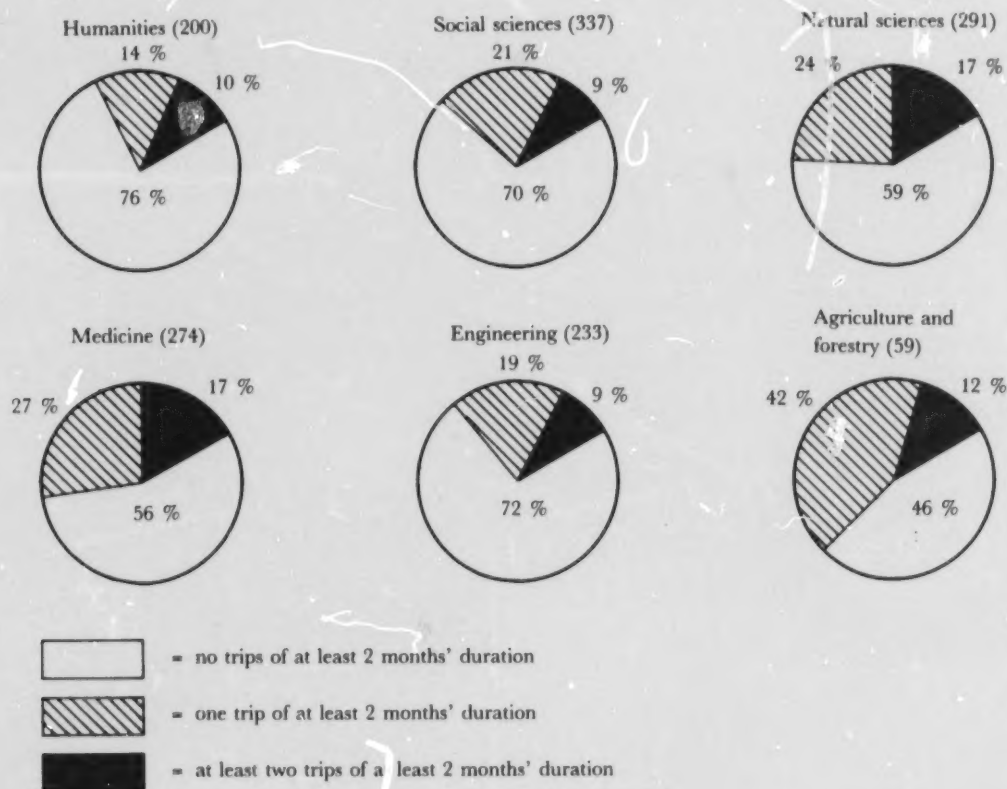
1. Participation in academic and professional exchanges with respect to field

Of the 1395 professors who responded to the inquiry, 485 had made at least one trip to the United States of at least two months' duration for purposes of research, teaching, or graduate study. Approximately 13 % had made at least two trips. Hence, a total of 35 % of the responding Finnish professors had participated in the Finnish-American academic and professional exchange.

With respect to the 200 professors in the humanities, 24 % had made at least one trip to the United States for purposes of research, teaching, or graduate study; 4 % had made at least three trips. Approximately half of the professors of English philology and English literature had visited the United States at least once.

For purposes of this study the authors considered

Figure 1. Participation of Finnish professors in Finnish-American academic and professional exchanges classified according to field.



law, business, and education as social sciences along with the traditional fields of sociology, anthropology, political science, psychology, and economics. Of the 337 respondents in the social sciences 30 % had made at least one trip to the United States. Of those who had been appointed to a full professorship, 44 % had participated in the Finnish-American academic and

professional exchange; 29 % of the associate professors, and 13 % of the acting professors could say the same. With respect to professors of psychology and political science more than half had participated in the exchange. On the other hand, less than a fifth of the professors of law and education had made at least one trip.

The participation of professors in the natural sciences (291) in Finnish-American academic and professional exchange has been more broadly based than that of those working in the humanities and social sciences. Over half (53 %) of those appointed to a professorship in the natural sciences had made at least one trip to the United States within the framework of the exchange. Of 14 professors of biochemistry or biophysics, 11 had participated in the program. Professors of physics (46) are also well represented: almost 60 % had visited the United States for purposes of research, teaching, or graduate study. The corresponding number for professors of mathematics was 45. On the other hand, professors in the earth sciences and geography had not participated in these trips to any great extent.

Of the 274 professors of medicine 44 %, including 51 % of the full professors, had visited the United States in one of the three aforementioned capacities. Thus, more than half of the representatives of the basic-theoretical (*lääketieteen perusteoreettiset tieteet*) and clinical-theoretical (*kliinisteoreettiset tieteet*) sciences in the field of medicine have spent at least two months in the United States teaching, conducting research, or pursuing graduate study. The corresponding figure for the clinical sciences is 38. On the other hand, only four of 25 professors of veterinary medicine and pharmacy had participated in the exchange program.

With respect to professors in the engineering sciences (233), only 28 % had been to the United States for purposes of research, teaching, or graduate study. Within the engineering sciences the fields which are best represented in this exchange are physical engineering, chemical engineering, and electrical engineering. Only four trips have been made by professors in the fields of mining, structural engineering, or mechanical engineering.

Architecture and forestry are two fields in which Finland enjoys a reputation as a world leader. It is

interesting that the level of participation in the exchange with the United States is strikingly different in these areas. Especially surprising is the fact that of the ten professors in the field of architecture who answered, not one had participated in the exchange program. On the other hand, more than two-thirds of the professors in the field of forest management had conducted research, taught, or pursued graduate studies in the United States.

Viewed as a whole, the professors representing the following fields showed the highest percentage of participation in the Finnish-American academic and professional exchange:

	Rate of participation
— biochemistry and biophysics (14) ¹⁾	79 %
— astronomy (4)	75 %
— engineering physics (15)	67 %
— forest management sciences (23)	65 %
— basic theoretical sciences in medicine (39)	59 %
— physics (46)	59 %
— psychology (26)	58 %

¹⁾Number of respondents

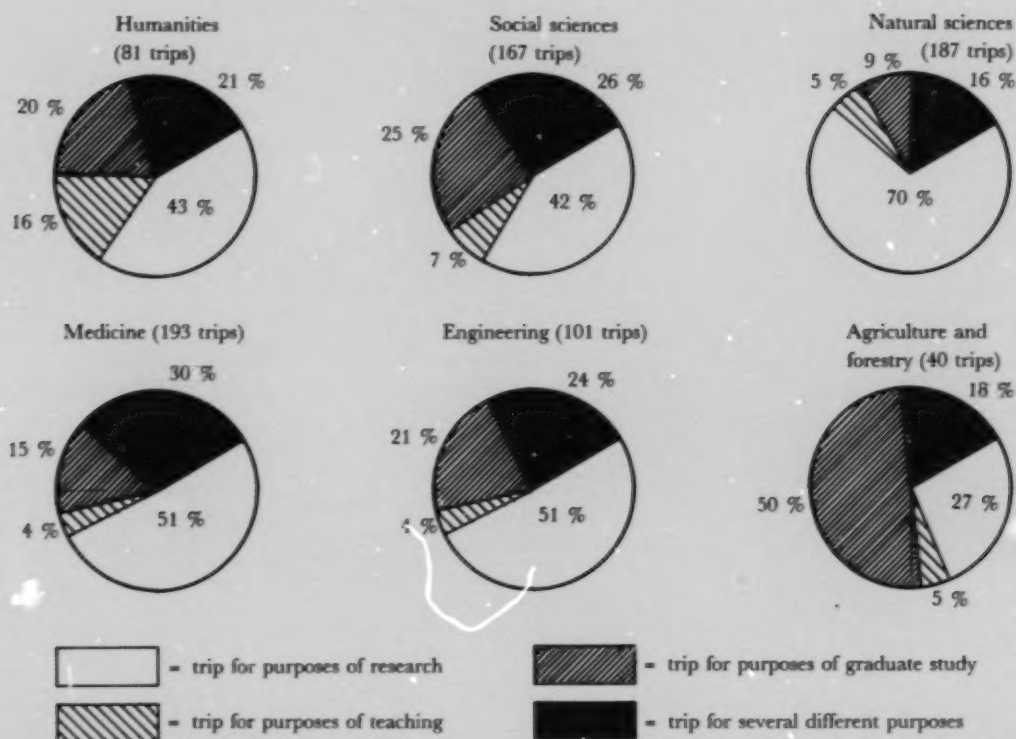
2. Purpose of the trips

As stated earlier the authors took into consideration only those trips made to the United States for purposes of research, teaching, and graduate study that had lasted for at least two months. A total of 485 professors had made 769 trips.

More than half (51 %) of the trips to the United States made by Finnish professors were for purposes of research. Only 6 % of the trips were for purposes of teaching, and every fifth trip was for the purpose of

Figure 2. Purpose of trips (769) to the United States of at least two months' duration made by Finnish professors, tabulated according to field.

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graduate study. Every fourth trip had several different purposes. In most cases trips of this type were primarily for purposes of research, in addition to which some teaching or graduate study, or both, also were included.

The trips made by professors of the humanities had a strong emphasis on research, whereas the trips made by professors in agriculture and forestry had a stronger emphasis on graduate or post-graduate study. More

than was true of colleagues in other fields, the trips made by professors of medicine usually had multiple purposes.

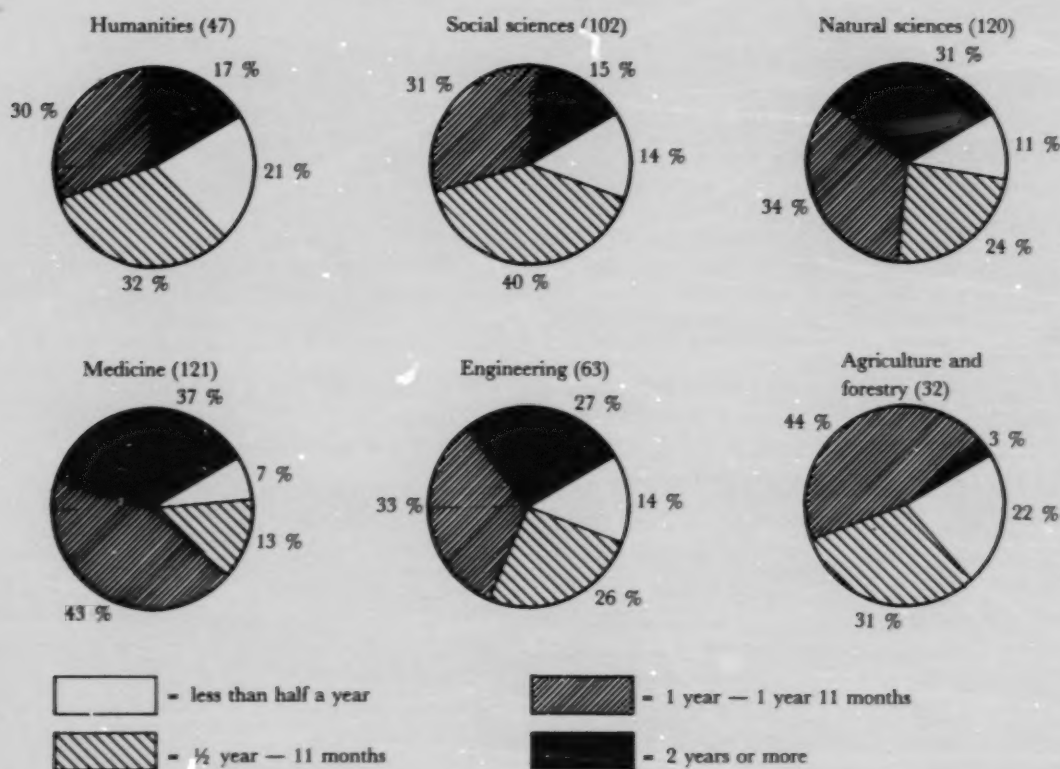
Not surprisingly, the trips made by full professors more frequently had several purposes than those made by associate professors. As many as 60 % of the trips made by associate professors were for purposes of research. The trips made by associate professors of

medicine and engineering in particular were much more frequently made for purposes of research than were those made by full professors in these fields. The trips made by associate professors in the social sciences, however, were most often for graduate study.

3. Duration of stay in the United States

Most of the professors who have participated in the Finnish-American exchange spent from one to two years in the United States (figure 3). Sixty-one percent

Figure 3. The amount of time 485 Finnish professors representing different fields spent in the United States for research, teaching, and graduate study.¹⁾



¹⁾The duration of all trips of at least two months made by each respondent have been added together.

of the professors who have made a trip to the United States have worked there for at least a year. Of these, full professors have spent a somewhat longer time there than have associate professors. Twenty-seven percent of the professors had spent more than two years in the United States, as had twenty-one percent of the associate professors.

The different fields differ considerably with respect to the amount of time spent in the United States. Professors in the humanities, the social sciences, as well as in the agricultural and silvicultural sciences, have spent a noticeably shorter amount of time in the United States than have their colleagues in medicine, engineering, and the natural sciences.

Seventy-eight percent of the professors who have participated in the Finnish-American exchange and who hold a chair in medicine, as well as a full 82 % of the associate professors in the same field, had made a trip of more than a year in duration. With respect to the engineering sciences the situation is the reverse: 66 % of the full professors and 53 % of the associate professors had spent at least a year in the United States.

It appears to be the case that those professors belonging to the older generation have, generally speaking, worked in the United States for a shorter time than their younger colleagues. Specifically, the length of time spent in the United States by those professors born before 1930 is more frequently less than a year than is the case for those who were born later than 1930. For example, of the professors of medicine born during the 1920's, 73 % had stayed in the United States for at least a year. The corresponding figures for those born during the 1930's and after 1940 were 87 % and 89 % respectively. With respect to the natural sciences, approximately one-fourth of the professors belonging to the older generation had spent at least two years in the United States, in contrast to their younger

colleagues, a full third of whom had spent that amount of time there.

Turning our attention to individual trips, we also observe that professors in the humanities, in particular, have made trips of a short duration to the United States. In contrast to them, professors working in the field of medicine have made longer trips. Of the trips made by professors of medicine 61 % have lasted for at least a year. The corresponding figure for professors in the humanities is only 25 %.

4. Home institution of visitors to the United States

The Finnish system of higher education consists of 17 separate units, each of which has the right to confer the highest academic degree, the doctorate. There are two reasons for the existence of so many units in a relatively small country: the policy of locating institutions evenly in different areas of the country so that higher education is within easy reach of all, and the language situation. Since Finland is a bilingual country (Finnish and Swedish), higher education is available in both languages. Since the ratio of students enrolled in higher education to the age group of the population does not differ significantly in Finland from in other European countries, most Finnish universities and colleges are relatively small.

A third (32 %) of the professors and associate professors who had made a trip to the United States were from the University of Helsinki. Twelve percent were from the University of Turku, nine percent from the University of Oulu, and eight percent from the Helsinki University of Technology. These four universities account for a full 61 % of the visits made to the United States for purposes of academic and professional exchange. Professors attached to research institutions accounted for 7 % of all trips.

Of the professors attached to the University of Helsinki 42 % had visited the United States. The corresponding figures for the University of Turku were 38 %, for the University of Kuopio 37 %, for the University of Jyväskylä 35 %, and for the schools of economics 35 %. Of the professors attached to state research institutions 38 % had made a trip to the United States for purposes of research, teaching, or graduate study.

5. Examination from the standpoint of age and position

Professors have visited the United States significantly more frequently than associate professors; the latter, for their part, have participated in exchanges noticeably

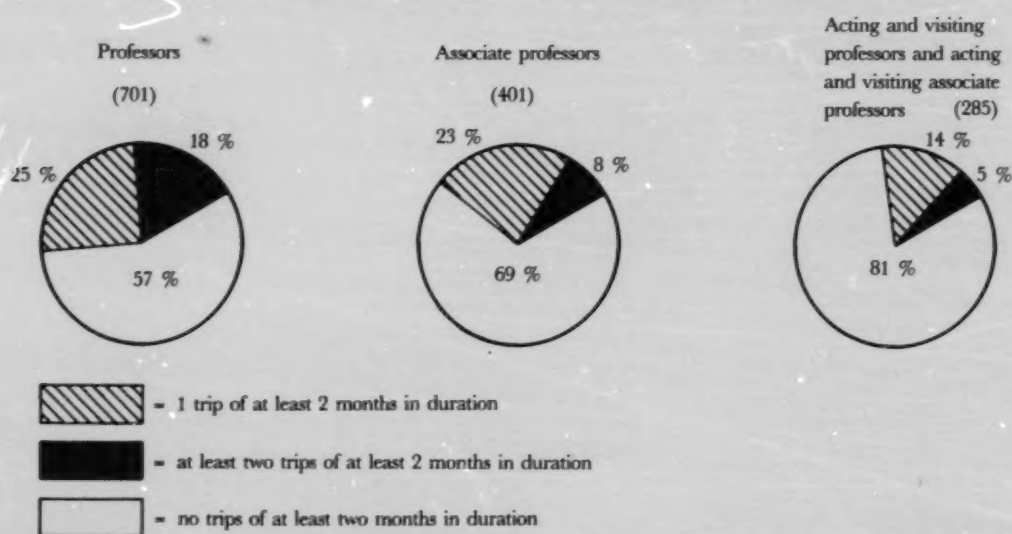
more frequently than those who were only temporary holders of a position at the time the inquiry was made.

It is difficult to correlate participation in the Finnish-American academic and professional exchange with appointments to professorships. No data were collected on whether trips were made before or after the appointments. It may be the case that it is easier for full professors to be named to the exchange than it is for the other groups studied.

Young professors had visited the United States as often as their older colleagues. Similarly, young associate professors had made trips as often as had their older colleagues.

On the other hand, an examination of the entire body of professors demonstrates that those born before 1921 constitute a divergent group. It is clear that they

Figure 4. Participation of Finnish professors in Finnish-American academic and professional exchange with respect to position.



have participated in the Finnish-American academic and professional exchange more often than any of the other groups. Those born after the year 1940 constitute a second divergent group; they have participated in this exchange to a lesser degree than have their older colleagues. While older professors have been to the United States somewhat more often than the younger ones, the younger professors have stayed longer in the United States during their visits.

Those professors who have held their position for a long time have visited the United States noticeably more often than have those who have had their position for a shorter time. The connection is particularly evident with respect to those who have held their positions for more than 20 years. The observed connection between long tenure in a position and participation in the exchange was also evident on a different level with respect to those appointed to professorships and those appointed to associate professorships.

6. Host institution in the United States

The professors teaching at Finnish universities and colleges during the spring of 1983 have, as a whole, visited 170 universities or research institutes in the United States. According to field the following distribution can be noted (Table 1):

The trips of at least two months made by professors in the *humanities* for purposes of research, teaching, or graduate study had a large number of different universities as their destination. The most frequent host institutions were the University of Wisconsin at Madison, Harvard University, Indiana University, the University of California at Berkeley, and Yale University.

The institutions most frequently hosting *social scientists* were the University of California at Berkeley, Harvard

University, and Stanford University.

With respect to the *natural sciences* the University of California at Berkeley was the most popular host institution. The other institutions visited most frequently were the University of Wisconsin, Harvard University, and Stanford University.

Professors in the *medical sciences* most frequently spent time at the laboratories of the National Institutes of Health located in Washington D.C., as well as at Harvard University and the University of California at Berkeley. Columbia University and the University of Pennsylvania were other frequently visited institutions.

The institutions most frequently visited by professors representing the *engineering sciences* were the University of California at Berkeley, Stanford University, and the Massachusetts Institute of Technology (MIT).

The trips made by professors of *agriculture and forestry* most frequently had the University of California at Berkeley and Cornell University as their host institutions.

On the whole, Finnish professors visiting the United States within the framework of the exchange program have had the most prestigious American universities as their host institutions.

7. Financing of academic and professional exchanges between Finland and the United States

Information was obtained concerning the financing of 731 trips, which were supported by approximately 150 American and 20 Finnish sources. The ASLA-Fulbright program served as a joint Finnish-American source; financing was also provided by five multinational societies.

Only information concerning the principal source of financing was requested, and in these cases only trips

Table 1. The 25 institutions most frequently hosting Finnish professors during their visits to the United States classified according to field.

University or Research Institute	Field						total
	hum.	soc. sci.	nat. sci.	med.	eng.	agr. & for.	
University of California at Berkeley, Los Angeles etc.	5	19	22	14	11	7	78
Harvard University	5	18	10	16	-	-	49
Stanford University	2	10	10	4	7	-	33
University of Wisconsin, Madison	6	6	11	5	-	2	30
University of Michigan	3	7	7	7	-	1	25
Cornell University	-	7	3	4	2	5	21
Massachusetts Institute of Technology	3	4	5	-	7	2	21
University of Minnesota	4	1	5	6	2	2	20
Columbia University	1	5	3	9	-	-	18
National Institutes of Health	-	-	-	18	-	-	18
Indiana University	5	4	4	1	1	-	15
University of Pennsylvania	-	2	2	9	-	1	14
University of Chicago	4	5	1	1	1	-	12
University of Illinois	-	4	1	3	4	-	12
University of Washington	2	-	2	4	1	1	10
Yale University	5	2	1	2	-	-	10
The Johns Hopkins University	-	2	1	6	-	-	9
The Pennsylvania State University	-	1	-	5	1	2	9
Princeton University	-	5	4	-	-	-	9
University of Nebraska	-	-	-	8	-	-	8
Purdue University	1	2	2	-	3	-	8
University of Rochester	-	2	-	6	-	-	8
State University of New York at Buffalo	1	2	2	3	-	-	8
Northwestern University	-	4	1	-	1	1	7

that lasted for at least two months and whose purpose was research, teaching, or graduate study were considered.

The principal sources of support for trips having a duration of at least two months (total: 731) were the following:

Table 2. Principal sources of support for trips to the United States classified according to field.

33

Principal Source of Support	Field						total
	hum.	soc. sci.	nat. sci.	med.	eng.	agr. & for.	
National Institutes of Health	-	2	7	64	-	1	74
University of California, Berkeley	3	2	4	1	4	1	15
University of Wisconsin, Madison	3	2	7	2	-	-	14
University of Minnesota	2	-	2	1	2	-	7
Indiana University	6	-	-	1	-	-	7
Massachusetts Institute of Technology	1	-	2	-	3	-	6
Other Universities or institutions in the United States	17	33	52	32	16	3	153
American Council of Learned Societies	5	9	2	-	-	-	16
Kellogg Foundation	-	-	2	-	-	13	15
Rockefeller Foundation	-	5	1	6	1	-	13
National Science Foundation	-	-	8	1	1	-	10
Ford Foundation	-	5	-	1	1	-	7
Other American source of support	5	20	17	34	17	4	97
Total American financial support	42	78	104	143	45	22	434
ASLA-Fulbright	26	60	42	29	23	14	194
The Academy of Finland	6	6	18	1	6	2	39
A Finnish college or university	-	5	4	2	2	-	13
A Finnish foundation or fund	1	5	5	1	4	1	17
Some other source of support in Finland	-	-	3	3	5	-	11
Personal funds	3	10	1	10	2	-	26
Total Finnish financial support	10	26	31	17	19	3	106

- An American university or college 28 %
- The National Institutes of Health 10 %
- An American foundation or other non-university source of support in the United States 22 %
- The ASLA-Fulbright program 26 %
- The Academy of Finland 5 %
- Some other source in Finland 9 %

100 %

The most important source of support was the ASLA-Fulbright program. With the exception of the medical sciences, this program has financed the greatest number of visits. The largest source of support for scholars working in the medical sciences has been the National Institutes of Health.

The ASLA-Fulbright program and American host institutions have provided the greatest amount of support for specialists in the humanities. In the natural sciences the contribution of the Academy of Finland has been considerable. In the engineering sciences both the ASLA-Fulbright program and American host institutions have been the principal sources of support, although some Finnish foundations and business interests have also assisted. (Table 2.)

The statistics provided by the United States Educational Foundation in Finland (USEF) can provide more precise information concerning both the development of financing as well as the distribution of funds among different groups.

Finnish research scholars and lecturers have generally held the doctorate and have travelled to the United

States for post-doctoral research. They usually have received support for a period ranging from three to eight months. Financial support for teachers on the pre-college level was ended at the beginning of the 1970's. Similarly, a significant reduction has occurred in financial support for trips by leaders and specialists who do not fall within the framework of an actual academic and professional exchange. Graduate students represent a group significant not only quantitatively, but also from the standpoint of the important role these trips have played in their subsequent development. During the 1980's the number of such trips, usually lasting for a year, made annually has been significantly larger than it was during the 1970's. (Table 3.)

On the whole, the decade of the 1960's was the most significant period of financing under the ASLA-Fulbright program. During the 1970's the number of trips to the United States diminished considerably. During the 1980's, in contrast, the number of trips made by research scholars, university teaching staff, and graduate students has begun to show an annual increase.

Table 3. Trips to the United States financed by the ASLA-Fulbright program, 1950—1982.¹

Years	Res. Scholars & Lecturers	Teachers	Graduate Students	Leaders & Specialists	Total
1950—1959	104	142	435	288	969
1960—1969	161	109	334	426	1030
1970—1979	104	35	128	116	383
1980—1982 ²	44	—	56	10	110
Total	413	286	953	840	2492

¹ Source: ASLA-Fulbright archives

² The last time period contains only three years, the other ones contain ten.

Scholars from the United States in Finland

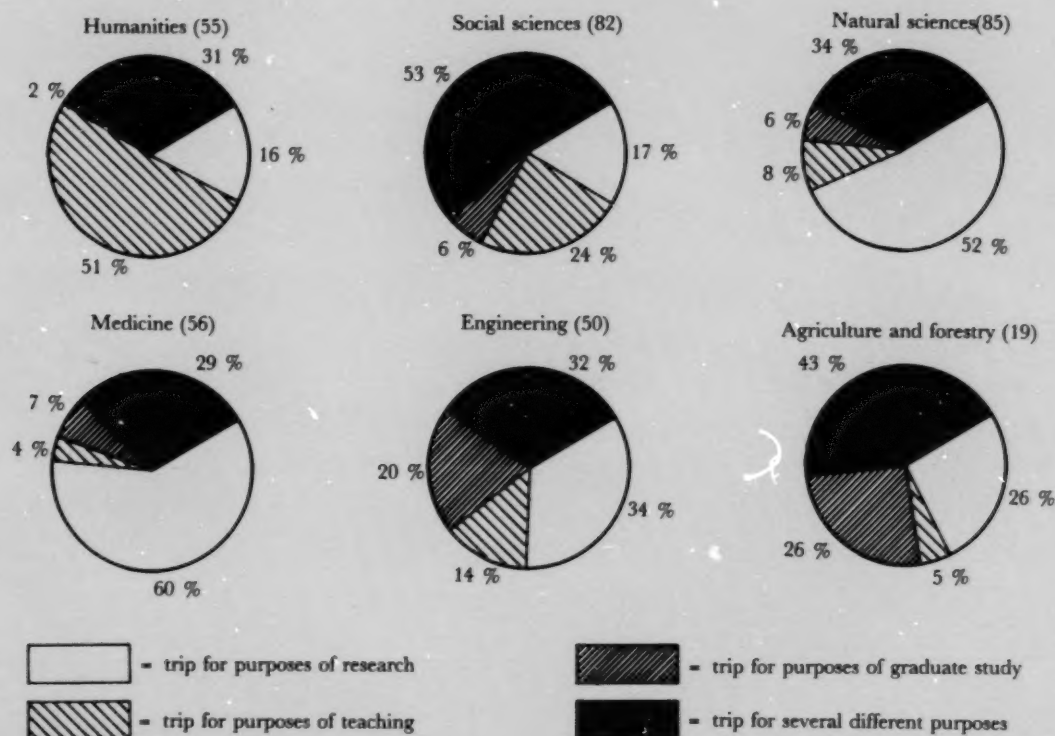
The Finnish professors were asked if during their tenure there had been any research scholars from the United States conducting research, teaching or pursuing graduate studies in their departments or laboratories.

The professors reported that there has been a total of 288 American research scholars conducting research, teaching, or pursuing graduate studies in their department for a duration of at least two months.

1. Purpose of the trips

The responses revealed that compared with their Finnish colleagues who went to the United States, American scholars came to Finland much more rarely for the purposes of pursuing research or graduate studies, and much more frequently to teach. However, when considering trips made from Finland to the United States, only those made by professors and associate professors were taken into account, whereas in

Figure 5. Purpose of the trips to Finnish colleges, universities, and research institutes lasting for at least two months made by American research scholars classified according to field.



accounting for trips made from the United States to Finland all trips were considered for which a Finnish university or research institute hosted an American scholar.

With respect to specialists in the natural sciences, and particularly in the case of scholars working in one of the medical fields, trips made to Finland were more likely to be for purposes of research than were those made by representatives in other fields. More than half (51 %) of the trips made by specialists in the humanities were purely for teaching purposes.

In the agricultural, silvicultural, and engineering sciences, trips for the purpose of graduate research played a more central role than in other fields. The trips made by specialists in the social sciences, in turn, have served multiple purposes more often than have those made by representatives of other fields.

2. Financing of the trips

The ASLA-Fulbright program has been overwhelmingly the most important source of financial support for academic and professional exchanges between Finland and the United States (table 5). Approximately half (49 %) of the American respondents to the inquiry indicated that it was specifically the ASLA-Fulbright program that had provided principal financial support for their trip. Approximately a quarter (26 %) of the trips made to Finland by American scholars was financed from sources in the United States. Financing for American scholars was provided by sources in Finland in 25 % of the cases, while only 14 % of Finnish trips to the United States were financed by Finnish sources. Finnish sources, often the host institution, provided the principal financial support most often in the case of trips made by specialists in the agricultural and

silvicultural sciences (40 %), in engineering (37 %), and the natural sciences (35 %).

The ASLA-Fulbright program has been particularly important as the primary source of financial support for trips to Finland made by American scholars in the humanities (72 %) and the social sciences (73 %). The National Institutes of Health has financed a significant number of the trips to Finland made by American specialists in the medical sciences. (Table 4.)

Complete information concerning trips financed by ASLA-Fulbright scholarships is available from 1950. The ASLA-Fulbright program has played a central role as source of support for trips made by American scholars to Finland. About half of the trips made to Finland by American scholars as part of an academic and professional exchange have been financed within the framework of this program. (Table 5.)

During the course of the past three decades 578 American scholars, teachers, and graduate students have visited Finland within the framework of the ASLA-Fulbright program. This number is only one-fifth of the Finnish scholars who have visited the United States (2 492). The largest number of trips to Finland made by American scholars was financed by the ASLA-Fulbright program during the 1960's. During the following decade the amount of support offered by the program was reduced by almost 50 %, largely because elementary and secondary school teachers were no longer included within its framework. All other sources of funds, Finnish and American, underwent a similar reduction of approximately fifty percent during the 1970's compared to the previous decade. Since 1980 the number of grants has undergone a further reduction; this has been most noticeable with respect to the number of research scholars for stays in Finland lasting for a duration of from three to eight months. The only area of increase in the 1980's has been the number of trips made by American graduate students.

Table 4. *Principal source of support for American research scholars visiting Finland classified by field.²*

Principal source of support for the trip	Field						Total
	Hum.	Soc. sci.	Nat. sci.	Med.	Eng.	Agr. & for.	
Home institution	9	1	15	22	18	7	12 (34)
Other American source of support ¹	6	8	7	44	11	13	14 (41)
ASLA-Fulbright	72	73	43	13	34	40	49 (140)
The Academy of Finland	—	4	8	5	11	—	5 (15)
The Finnish host institution	4	4	22	9	22	27	13 (37)
Other Finnish source of support	9	10	5	7	4	13	7 (21)
Total	100	100	100	100	100	100	100
Principal sources of support together	(47)	(71)	(65)	(45)	(45)	(15)	(288)

¹ For example NIH and the Kellogg Foundation

² The data are not exhaustive because professors were only asked for information about visits to their departments that had taken place during their tenure.

Table 5. *Trips to Finland from the United States financed by the ASLA-Fulbright program, 1950—1982.¹*

Years	University Lecturers	Resident Scholars	Teachers	Graduate Students	Total
1950—1959	72	33	12	60	177
1960—1969	115	41	35	51	242
1970—1979	77	22	2	24	125
1980—1982 ²	22	2	—	10	34
Total	286	98	49	145	578

¹ Source: ASLA-Fulbright archives.

² The last time period contains only three years, the other ones contain ten.

The ASLA-Fulbright program has provided financial support primarily for teaching and research in the humanities and social sciences. Since 1953 43 % of the trips financed within the framework of the program have been made by specialists in the humanities, while 24 % of them have been made by social scientists. Teachers of American literature in particular have

made numerous visits to Finnish universities. The proportion of ASLA-Fulbright scholarships allotted to specialists in the natural sciences has demonstrated a steady increase over the three decades. During the period 1953—1959 natural scientists received 7 % of the scholarships, but by 1980—1982 a full 18 % of the total funds granted was allotted to them. During the

same period the amount of funds granted to representatives of the engineering sciences decreased from 17 % to 11 %. Research scholars and teachers in medicine, agriculture, and forestry each received 5 % of the funds.

The University of Helsinki has hosted approximately half of the 493 American ASLA-Fulbright grantees who visited Finland during the period 1953—1982. Twelve percent of the visiting American teachers and research scholars have been hosted by the University of Turku, seven percent by the University of Jyväskylä, while the Universities of Tampere and Oulu have each hosted four percent. The proportion of ASLA-Fulbright grantees studying at the Helsinki University of Technology has dropped from 17 % to 7 % during the thirty years covered by the study. The schools of economics have been the host institutions for 8 % of the Americans who have visited Finland within the framework of the ASLA-Fulbright program.

Assessment of the development of the exchange

The United States is the world's leading country in many scientific fields because of the size and variety of its research establishment. In contrast, a small country such as Finland is best able to conduct research meeting high international standards in a limited number of carefully chosen fields. The most fruitful scientific cooperation between our two countries can be realized by combining the advantages each country offers.

Finnish professors were asked where they would like to see emphasis placed in future efforts to develop the academic and professional exchange between Finland and the United States. Most responded by saying that they hoped this exchange would be broadened and developed so that both host institutions and visiting scholars would benefit. Specialists in a number of

relatively small fields heretofore not involved in the program, such as oral surgery and public administration, expressed a desire to participate in the exchange.

The respondents also offered many specific suggestions. Frequent sentiment was expressed in favor of more brief lecture tours by American scholars in Finland. These scholars not only provide new information, but also aid in the graduate training of future Finnish scientific researchers. Several respondents emphasized the importance of broadening the possibilities for young Finnish research scholars to pursue graduate studies in the United States.

The respondents stressed the significance of short-term (under three months) visits and hoped that their number might be increased. These short-term visits usually include graduate study, on the spot familiarization with the workings of a specific host institution as well as with the methods and procedures used there, performance of experiments or measurements, or the planning of a specific research project. Short-term trips are usually closely connected with research projects carried out on a bilateral basis.

Some of the professors expressed a desire to see Finnish-American exchanges organized within the framework of a variety of agreements. Several suggested a direct exchange of university positions, sabbatical years in each other's country, and research agreements between individual universities. Many also alluded to the benefits resulting from unofficial personal contacts formed during the exchange.

The respondents raised several points that are worthy of consideration if one hopes to strengthen and expand the exchanges. Specialists in the humanities, for instance, emphasized the benefit both parties can derive from co-operation in linguistic fields. One respondent noted: "Finnish scholars are able to provide concrete information about the languages related to Finnish.

This information is very important for American researchers in a field such as general linguistics. For their part, Finnish scholars can derive much from recent developments in American general linguistics." Another scholar wrote: "With respect to the teaching of foreign languages, the United States is a leading country in several respects. On the other hand, Finland provides excellent opportunities for studying the problems connected with bilingualism." Some other respondents noted further that the study of the language used by immigrants provides a concrete basis for linguistic research on topics like "The Finnish of American Students and the American English of Finnish Students", or "Changes in the Language Spoken by Immigrants to the United States."

In the social sciences there is clearly a need to develop the exchange in those fields hitherto essentially unaffected. In the field of education, for example, a lack of cooperative contacts was noted in the teaching of physical education, foreign languages, and general science. Specialists in the field of law expressed a desire for cooperation in the form of congresses and joint research projects.

In the natural sciences, bodies such as the Geological Survey, would like to organize scientific cooperation in the form of permanent exchange and scientific agreements. Finnish scholars working in the fields of geology and applied geophysics noted as a disadvantage the fact that foreign researchers are unable to participate in the graduate study programs offered by the U.S. Geological Survey and the National Research Council. Because of the lack of telescopes and limited opportunities available in Finland for making astronomical observations, cooperation with the United States in astronomy is strongly desired. Although cooperation in research in the natural sciences has already led to such concrete action as exchanging of samples, the Finnish scholars saw a greater potential for

Americans in this area. Research carried out in Finland, for example, offers American scholars one of the world's most extensive collections of mosses, lichens, and fungi, as well as highly developed research in fields such as hydrobiology.

Even though there is quite an extensive exchange between Finland and the United States in medicine, professors in this discipline voiced a need for more short-term visits. They also proffered suggestions for an increase and further development of joint medical research projects. The United States is often able to offer the expensive special equipment and procedures needed in order to conduct research, while Finland is able to offer cheaper laboratory services. In the field of diagnostic radiology, specialists expressed a desire for joint development of research methods, while odontologists called for an increased number of studies of materials.

In the engineering sciences specialists stressed the importance of personal relationships for the creation of cooperative research and the benefits of exchange visits of varying duration. One professor noted: "The exchange between research institutes working on specific projects could be further developed by creating a flexible system not restricted to deadlines. This would provide an opportunity to work at a research institute in the other country if the project were of a short duration as, for example, in the case of visits lasting less than three months for the purpose of conducting special tests and taking measurements."

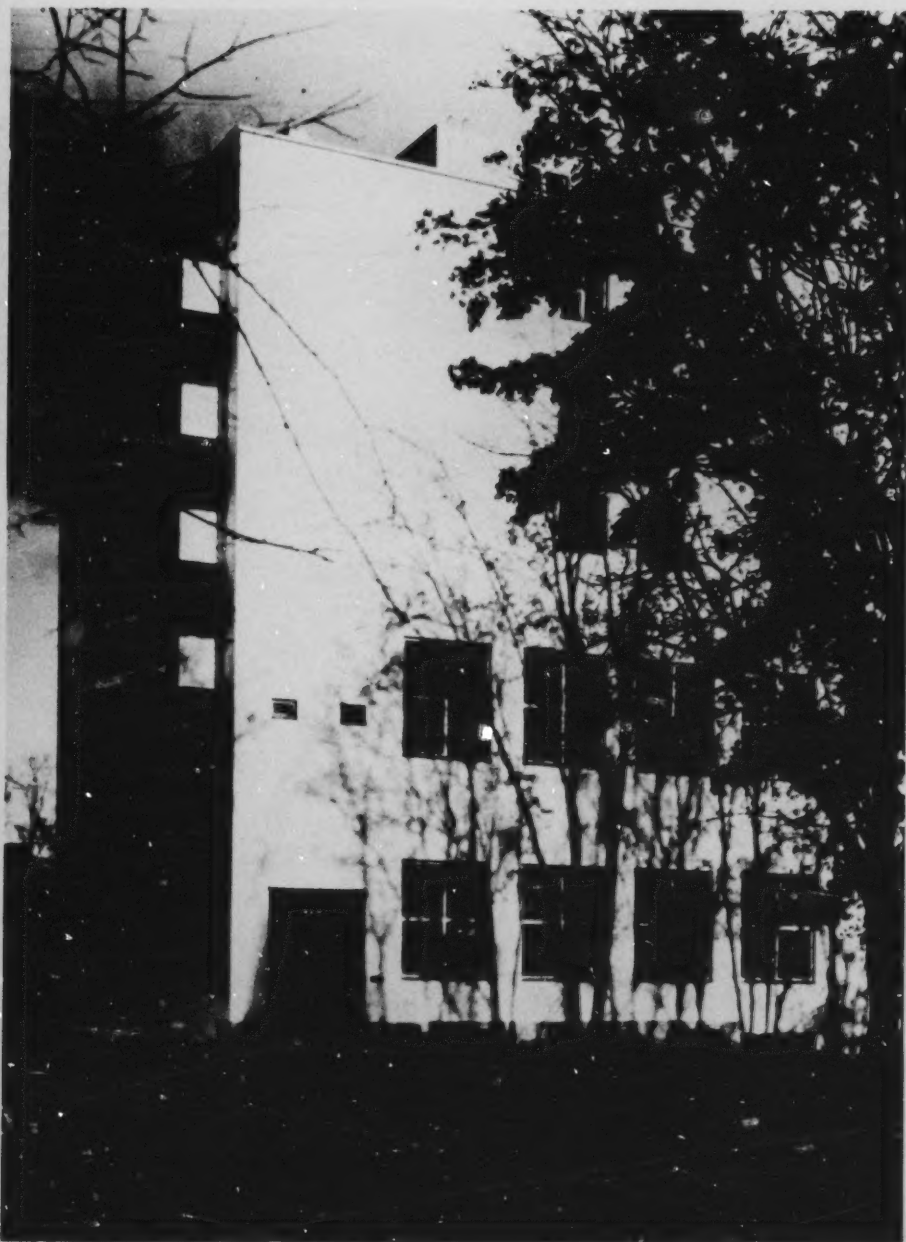
The possibility that the system of scholarships offered by the W. K. Kellogg Foundation might be terminated is a source of concern for researchers working in the fields of agriculture, forestry, and the food sciences. Representatives of these fields called attention to the great importance of the well established exchange of graduate student researchers with the United States and hoped for the further expansion and development of this program.

*Library of the Åbo Academy (Åbo Akademi, instruction in Swedish), 1935.
Architect: Erik Bryggman.*

*Erik Bryggman, stands only behind Aalto as an architect of the new style. He also worked
in the former capital in his early professional years.*

*The modern library building built within the historical core of Turku represents the white
purity of early Modernism.*

Photo: Welin



FINNISH-AMERICAN SCHOLARLY EXCHANGE: THE FINNISH PERSPECTIVE

Humanities

Views of a Specialist in the Humanities

LARS HULDÉN

Department of Nordic Languages
and Nordic Literature
University of Helsinki

41

Despite having made nine trips to the United States, during which I visited 21 different states, I would, nevertheless, be reckless if I were to express authoritative views about research in the humanities at American universities, since I have only spent time at one of them, the University of Wisconsin at Madison. My stay there, although certainly unforgettable, lasted for little more than four months. My other trips to the United States have been of much briefer duration. Nevertheless, the brevity of my experience has not prevented me from formulating a maxim which I impress on my students and colleagues: America must be seen.

The inquiry concerning experiences with the scientific exchange between Finland and the United States sent out to Finnish professors by the Foundation for Research in Higher Education and Science Policy during the spring of 1983 brought a response from 45 specialists in the humanities who had spent time at some American university. I personally never had the opportunity to answer, but as the forty-sixth specialist in the humanities, I should like to do so now, taking views of my colleagues into consideration.

My stay in Madison during the fall term of 1979 was part of a regular exchange of professors between the University of Wisconsin and the University of Helsinki. Every second year a professor from the University of Helsinki visits Madison, and every second year a professor from Madison visits Helsinki. The stay is expected to last some four or five months.

When I arrived at the Department of Scandinavian Studies, the head of the department greeted me with the words: "Do whatever you like. If you want to work, a study, appropriate materials, and a typewriter will be at your disposal. If you want to rest or travel, feel free to do so." I chose all three alternatives and

that proved a good thing to do. The result was a sabbatical semester in the fullest meaning of the term.

Many of those who responded to the inquiry suggested that opportunities to make short trips within the United States should be increased. I agree. A trip lasting a few weeks for the purpose of participating in a congress with colleagues can certainly be of value. But, the inquiry also produced evidence to the effect that we in Finland are not always sufficiently well informed with respect either to who is doing what within a specific branch of research in the United States or to what trends are making their presence felt. Thus, many colleagues have been confronted with sudden, abrupt insights for which they are unprepared at the congresses or symposia they attend on their short visits. More permanent impressions are provided by a semester or an academic year spent at an American university. Visits of this duration provide Finnish scholars more opportunity for orientation and adjustment.

Statistics demonstrate that Finnish scholars visiting the United States are often professors with comparatively many years of service behind them. In Finland, as one's years of service accumulate, one finds oneself increasingly under the obligation to participate in the activities of learned societies and to serve on various state and local committees. A Finnish professor finds himself faced with a multitude of extracurricular demands and temptations, many of which simply cannot be bypassed completely. My personal impression is that my American colleagues are somewhat freer to concentrate on their primary task which, if my observations are correct, is intimately connected with the system of career advancement and tenure.

Thus, a Finnish professor visiting the United States finds himself liberated from the obligation of attending

endless faculty meetings, as well as from the irritation caused by a constantly ringing telephone. The days are there at his disposal and they can, if desired, be devoted to research from dawn to dusk and beyond. A sabbatical year spent in Finland is not nearly as valuable to the Finnish scholar because the duties he has assumed remain, and they force him to divide his time. If a sabbatical year is spent in a country close to home the problem is virtually the same: too many trips may be made home during its course.

The American university milieu offers many pleasant surprises. For a researcher from Finland it is like being in paradise to be able to wander unrestrained in the university library. In Finland, as is all too well known, it is almost impossible for a researcher to browse among the shelves himself. Once when I was in Madison and supposed to write a paper about a certain aspect of poetry, I found myself standing in front of a veritable wall of books containing the information I needed in comprehensible as well as incomprehensible languages. An American university book store is also an inexhaustible treasure trove. Many of the answers to the inquiry emphasize how difficult it is in Finland to obtain information concerning the professional literature published in the United States. A study trip to America widens one's knowledge of the available literature.

University instruction in the United States gave me the impression of being arranged according to a pattern differing somewhat from that used here in Finland. Overhead projectors and other teaching aids of a technical nature were available, but they did not seem to be in as wide use as they are in Finland. I have never seen an American professor fiddle around with transparencies. Rather, the American professor uses his personality as a prism when he desires to give an overview of the problem under discussion. This is, of course, a consequence of a system of higher education which differs in many essential features from the one

we have in Finland.

Good care is taken of a visiting professor and his family during their free time. Informal socializing between colleagues on an interdepartmental basis is more developed in the United States than in Finland. Participation in departmental parties and excursions deepens friendships and aids in mastering the language. There is certainly no denying the fact that many visiting Finnish researchers have but a modest command of English when they arrive. That was my case, but progress is swift when one is an integral part of one's milieu.

During my months in Madison I had the privilege of serving on a doctoral committee, and of attending a graduation ceremony held in a stadium. The atmosphere differed completely from what one would expect at a similar function held in Finland. I could not help feeling a lump in my throat when children and relatives whooped like Indians on the warpath for "their" graduate at the ceremonious moment when the degree was conferred.

It is, or at least it should be, the rule that a person on a research grant is to make efforts to see a little more of his host country and its beautiful scenery. A person from Finland will naturally want to take a trip to one of the areas where his compatriots have settled as immigrants. In our case, this trip was realized in the form of a memorable journey by car through northern Minnesota, where one mailbox after another bears an unmistakably Finnish name. One might unexpectedly encounter a *Suomalainen kirkko* or "Finnish Church" by the wayside and this leads, of course, to a break in the journey in order to make closer acquaintance. A person descended from people who had emigrated from the village where I grew up took us on an airplane tour through the Mesabi iron mining district, as well as on a sightseeing excursion by automobile all around the cemetery where his mother had recently been laid to

rest. I had met her during the course of one of my earlier trips to the United States when I had been recording the stories emigrants had to tell about their experiences.

Emigration from Finland involved hundreds of thousands of people, and this is of much interest to philologist and historian alike. Professor Pertti Virtaranta, professor emeritus of Finnish at the University of Helsinki, has tape recorded a large corpus of narrative material obtained from Finnish emigrants. During the spring of 1971 four Finnish researchers, myself included, made an expedition through the northern states to tape record such material. We obtained material from approximately 600 people, many of whom had left that part of Finland where Swedish dialects were spoken when they were young. The purpose of the research was to find out how the Swedish language had been influenced by its new environment. Many studies have been based on this material which is now available in Helsinki to interested scholars. But, in the long run, it is probably the fates of the individuals which are described, rather than the linguistic details, which are of the greater interest.

Research devoted to emigration is, to a certain extent, a continuation of research devoted to typically Finnish themes. The aforementioned projects were, as is quite logical, financed by the Finnish authorities. But America offers the specialist in the humanities vast opportunities for research, opportunities ranging from American history and English with its American variants to bilingualism and general disciplines utilizing highly developed methodology.

If a researcher visits the United States unaccompanied, he generally has no difficulties finding a place to live; indeed, rooms are probably reserved for him. Researchers who want to take their families with them have somewhat more trouble finding a place to live. But taking the family is to be recommended if the

visit is to last for a term or more because this provides an opportunity to share impressions both during the stay as well as afterwards. Many of the responses to the inquiry suggest that efforts should be made to facilitate the problems faced by families trying to find a place to live.

It must be admitted that not even the United States is free from bureaucracy. It is quite common for the first installment of a grant to be paid late, just when the money brought along from home is beginning to run short. To have to borrow from friends while waiting can be a somewhat painful experience. And not all visitors possess accurate and up to date information with respect to an American visa — a potential source of difficulties. Many responses express a desire for better information concerning opportunities to make trips to the United States for purposes of research, and more practical tips could probably also be given to those who are considering the possibility.

The vast majority of those who responded to the inquiry emphasized how significant their stay in the United States was for their development as researchers, as well as for their attitude towards their field. There is a general consensus to the effect that the exchange of researchers between our two countries should be intensified in the future.

Exchange involves two parties, both giving, both receiving. My emphasis thus far has been on the experiences of a Finnish researcher in the United States, but it is obvious that we also have to look at the other side of the coin. Specifically, we must ask what Finland has to offer the American specialist in one of the humanities. Our country does not extend over a vast area, nor is it characterized by the kaleidoscope of cultures, languages, and lifestyles which is so integral a part of the American scene. But we do have our bilingualism which provides an unusual object for study. Our recent history can provide much material

44 for interesting analyses. The Finnish language is one of the few non Indo-European languages spoken in Europe. Its structure and development offer much of interest to researchers in the fields of linguistics, history, and culture. The customs, habits, and folklore which the emigrants took along to the New World have their origins here. Emigrants who returned to Finland have served as cultural intermediaries, passing many aspects of their American experience on to us. Our dialects have American loan words, the style of building in many Finnish areas from which emigrants departed often display clear signs of American influence. Many everyday objects and implements were sent home, and they often wound up in local museums or have been lost from sight on some farm. Thousands of letters written by emigrants to their families and friends back

home have been preserved, and they have much to tell about the growth of the United States of America.

The literature of Finland, whether written in Finnish or in Swedish, has its specific character. Theater and music, both professional and amateur, provide interesting opportunities for research.

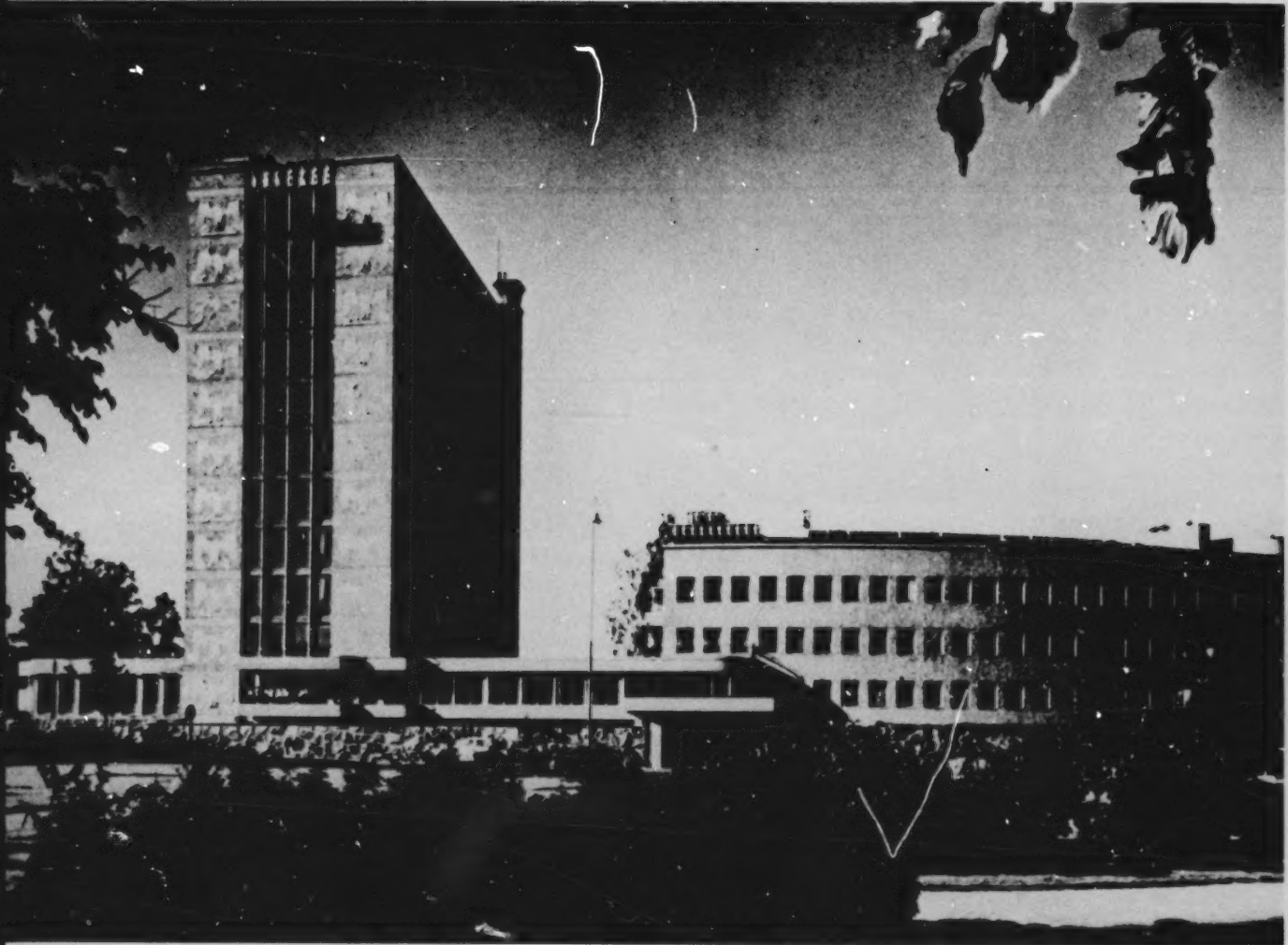
It is obvious that Finnish specialists in the humanities have accepted with gratitude the many stimulating opportunities which have been available during the past few decades for contacts with the United States.

It is no exaggeration to state that there is a desire held by virtually everyone in Finland working in one of the humanities that these contacts should be further developed in the future, and that American researchers should be as stimulated by us as we are by them.

*Children's Clinic, Helsinki, 1947.
Architects: Elsi Borg, Otto Flodin, Yrjö Sortta.*

Towards the end of the 1930's the white and ascetic modern style began to turn softer and sometimes deliberately more monumental. Elsi Borg was one of a number of gifted women architects in Finland, where women have been playing an active role in the profession since the end of the 19th century.

Photo: Ovaskainen



Finnish-American Interaction in Philosophy

JAAKKO HINTIKKA
Department of Philosophy
Florida State University

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The interaction in the field of philosophy between American and Finnish scholars offers an interesting, albeit a typical, subject for a case study. Unlike some other fields, the exchanges have been mutual; it is not even clear which party has contributed more or profited more. Furthermore, the nature of the intellectual exchanges is of some interest.

Before World War II, there does not seem to have been any first-hand interaction between American and Finnish philosophers. The influence of the ASLA-Fulbright program is dramatically shown by the intensity of the exchanges in the last few decades. To take an example at random, I am writing this at the Department of Philosophy of the University of Helsinki, where no fewer than three younger American philosophers happen to be visiting at this very moment. The majority of active philosophers in Finland have spent at least a year in the United States, and there has been a steady stream of American philosophers visiting Finland. Furthermore, some Finnish philosophers have enjoyed considerable visibility in the American philosophical community; for instance, G. H. von Wright was Professor-at-Large at Cornell from 1965 to 1977 and Jaakko Hintikka served as the President of the American Philosophical Association (Pacific Division) in 1975-76.

These visits have not been restricted to ASLA-Fulbright exchanges, however. Rather, ASLA-Fulbright grants have typically served to establish the first contacts, which then have led to co-operation supported by particular universities by ACLS fellowships, by a "think tank", etc. Typically, such non-ASLA visits have been organized through some particular contact in the United States, for instance, through G. H. von Wright's friends at Cornell or Jaakko Hintikka's colleagues at Stanford and at Florida State. There have even been non-scholarly trips, including a mountaineering expedition by Jan von Plato in 1981 to

climb the notorious "El Capitan" in Yosemite National Park.

One happy result of these exchanges is that it is not merely the senior Finnish philosophers, such as G. H. von Wright, Erik Stenius, and Jaakko Hintikka, who are well known in the American philosophical community. Many of the younger ones are known and appreciated at least by their fellow specialists in the United States. Among them there are Risto Hilpinen, Raimo Tuomela, Ilkka Niiniluoto, Simo Knuuttila, Esa Saarinen, Jan von Plato, Lauri Carlson and probably several others. We have here an instance of an eminently successful international scholarly communication and co-operation.

This integration has been decisively helped by ASLA-Fulbright grants. However, there may be imponderable factors which can explain why philosophers have been able by and large to make efficient use of the opportunities offered by these grants and other similar opportunities.

One basis for the success of these exchanges has been the intense philosophical activity in Finland itself. It has meant that Finnish philosophers have not gone to America merely to learn; they have had something to contribute as well. They have also been remarkably free from the attitudes of inferiority or superiority which have so often vitiated intellectual relations between United States and other countries. In many other fields, and among a minority of Finnish philosophers, one unfortunately still finds either a disproportionate emphasis on the importance of introducing this or that international intellectual fashion into Finland or else a violent suspicion towards everything foreign, especially American. It is in my mind quite clear that both these attitudes have been harmful to real scholarly co-operation.

An interesting general characteristic of Finnish philosophers' activities on the international scene in

general and in the United States in particular has been a kind of dogged individualism. They have not joined any on-going school or clique, and frequently have, on the contrary, insisted on doing things in their own way. This has been a double-edged sword. On the one hand, it has meant that Finnish philosophers have usually maintained an unmistakable profile of their own. On the other hand, it is also clear that if we had paid somewhat closer attention to the work of others and made some concessions to current expository styles, it would have prompted more attention to the results of the work of Finnish philosophers. It seems to me, for instance, that such works as Erik Stenius' book on Wittgenstein's *Tractatus* or G. H. von Wright's *Varieties of Goodness* would have merited an even greater attention than they actually received. The reason is that both these books were unashamedly unfashionable in their approach. On the plus side, one can register the fact that no Finnish philosopher who has been involved in the Finnish-American exchanges, with perhaps one exception, has ever been a victim of any of the numerous fads which periodically sweep the philosophical scene in the United States, be it an exaggerated interest in Wittgenstein, Quine, Chomsky, Davidson or Rawls. No proverbial "Davidsonic boom" has hit Helsinki or Turku in the way it, for instance, hit Oxford in the mid-seventies.

For another instance, Finnish logicians working in formal semantics have not climbed either the Kripke bandwagon or the Montague one (or the current "situation semantics" one), and they have consequently missed some of the attention these developments have attracted, even though their work has been parallel to, and in some cases earlier than that of their colleagues in the United States. At the same time, this independence has enabled Finnish philosopher-logicians to point out the intrinsic flaws in all these three fashionable trends more sharply than anyone else.

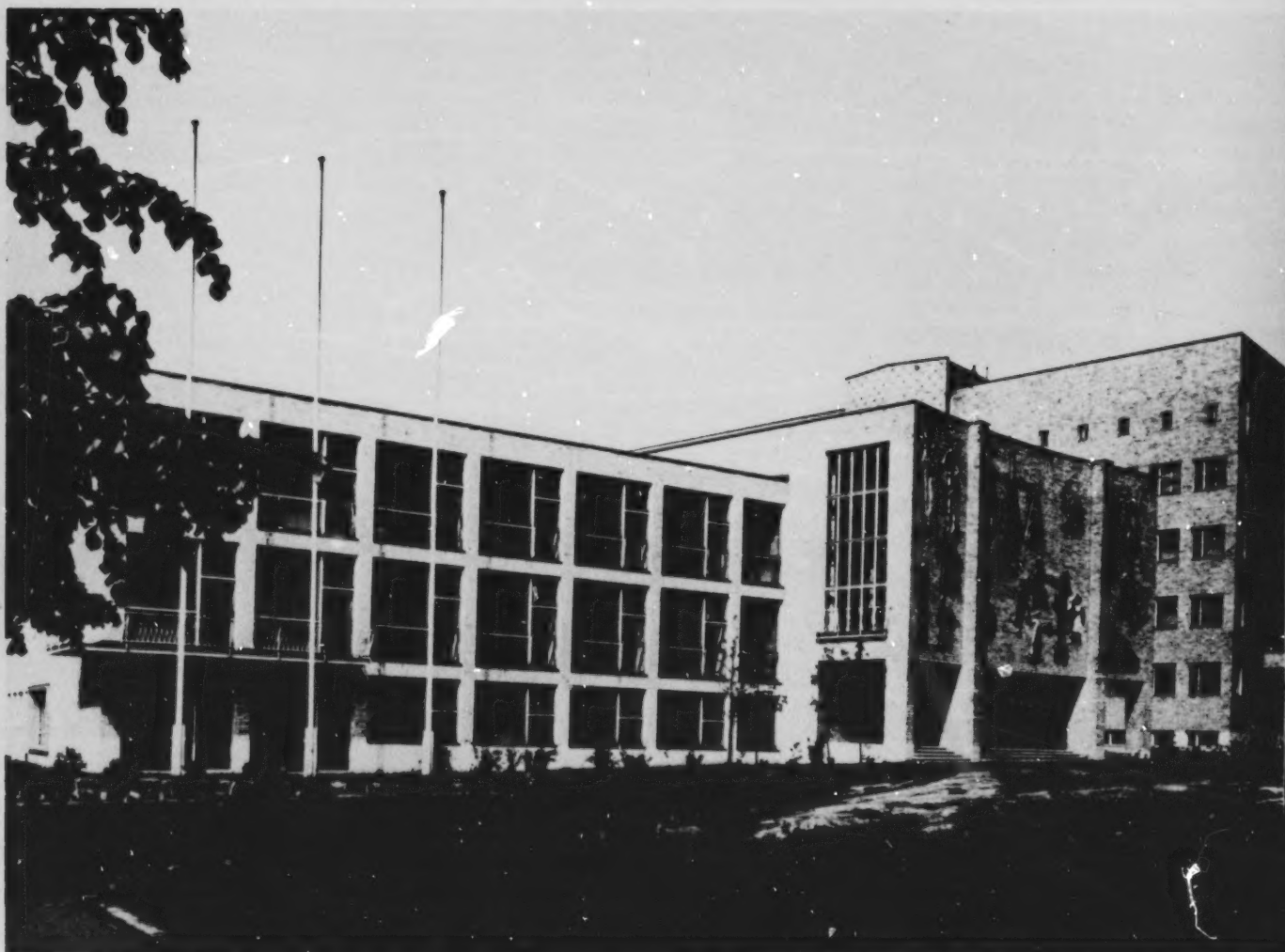
An additional factor in facilitating the participation of Finnish philosophers in the international philosophical community in general and in the philosophical life of the United States in particular is that they have been willing — and able — to undertake editorial tasks and jobs for the international philosophical organizations. About 6—7 years ago one of my youngest philosophical friends in Finland travelled abroad for the first time. He was like a fish in water, and needed next to no introductions, largely because he had served as the managing editor of an important international philosophical journal.

What moral can be drawn from our collective experiences? What ways are there perhaps to continue and to amplify the ASLA-Fulbright system? It seems to me that the ASLA-Fulbright program has produced the best results in fields in which it has been complemented by other channels of communication and exchange between the two countries. Perhaps some further attention should also be paid in the future to facilitating other types of scholarly visits. The more regular and frequent our contacts are, the better, it seems to me. One possibility that has occurred to me is to have some funds set aside for the purpose of enabling Finnish scientists and scholars to participate occasionally in the regular annual meetings of the main American professional organization in their field. Perhaps small Finnish-American special symposia could sometimes be organized with the help of suitable travel grants. Since these professional meetings are one of the most important media of scientific and scholarly contacts in each field in the United States, if not the most important one, the participation in these meetings of more Finnish scientists and scholars could be a useful way of deepening those contacts that often have been initiated by ASLA-Fulbright exchanges. I suspect that a relatively modest support could produce worthwhile results.

*Helsinki School of Economics, Helsinki, 1948—50.
Architects: Hugo Harmia and Woldemar Baeckman.*

Architecture became an essential cultural manifestation in post-war Finland. The period immediately before and after the war was characterized by romantic tendencies, although Finnish architecture has generally had a restrained and ascetic character. The ceramic tile decoration represents Finnish design which was to achieve a world reputation during the 1950's.

Photo: Pietinen



Social Sciences

ERIK ALLARDT

Department of Sociology

University of Helsinki

and

KRISTER STÅHLBERG

Department of Public Administration

Åbo Academy

One of the conspicuous features in higher education and scientific research in Finland since the Second World War has been the rapid rise of social science, particularly of its three basic fields, economics, political science, and sociology. Before the war social science teaching positions at the universities in Finland were few in number. From 1945 to 1969 there was an increase of over 300 percent in the number of professorial chairs in the social sciences.

American Scholarship and the Rise of Finnish Social Sciences

Although there were some outstanding individual scholars before the Second World War, the post-war decades can with reason be labelled the formative years

of Finnish social science. In this development the influence of American social science was considerable, to say the least. There exists a systematic study of citations made in all 87 Finnish doctoral dissertations in political science and sociology during the period 1952–1978 (Rautio & Suhonen 1981, pp. 58–67). It strongly confirms all the assumptions about the importance of U.S. scholarship for Finnish social science research. (Table 6.)

The U.S. citation sources are far more numerous than the sources from all other countries taken together if the citations from Finnish sources are omitted. Furthermore, the American sources have been more important than the Finnish domestic ones when the sources are classified in crucial and less important ones. The importance of the American references clearly

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Table 6. *Country of Publication of Reference Sources (Citations) in Doctoral Dissertations in Political Science and Sociology at Finnish Universities in 1952–78.*

Country	Sources of Reference						
		Theoretical information		Methodological information		Empirical information	
	All references	Crucial	Less Important	Crucial	Less Important	Crucial	Less Important
	%	%	%	%	%	%	%
Finland	39	13	22	26	32	49	52
Scandinavia	9	11	9	7	7	10	10
UK	10	13	12	6	7	10	8
Other Western Europe	5	7	9	4	5	7	4
USSR	1	1	1	0	0	0	0
Other Socialist countries	1	2	2	—	—	0	0
USA — Canada	34	53	44	57	49	21	26
Other countries	1	—	1	0	1	3	2
Total %	100	100	100	100	101	100	102
Number of references	7440	367	2551	83	871	308	4152

outweighs the Finnish ones as regards sources of a theoretical and methodological nature. The theoretical and methodological dominance of the American sources indicates, if anything, the strong dependence on basic influences from the United States during the formative years of Finnish social science.

Although the table above contains information only about doctoral dissertations in political science and sociology, it can be safely assumed that the picture is similar in the fields of economics and business administration. During the post-war decades most of the major theoretical and methodological influences in economics came from American scholars.

The American impact on Finnish social science is not internationally unique but reflects a phenomenon known all over Western Europe (Allardt 1975, p. 110). In Finland as elsewhere the American influence was strongest in the first decade after the war when the rise of social science was a part of the reconstruction period. This pattern is obvious when studying the sources of reference during different decades. Only information about sociology is available, but the trend is presumably similar in other social sciences. (Table 7.)

The U.S. influence was clearly strongest in the 1950's and weakest in the 1970's. Nevertheless, it can be seen that references made to American sources even in the 1970's were more numerous than all other foreign references taken together. Table 7 might to some extent be interpreted as a sign of Finnish social science having gradually matured. Yet science is international, and the problematic features in relying too much on domestic sources should not be denied, although these problems cannot be treated here. At any rate, we can assume that the development in economics and political science has been highly similar to the one shown in Table 7. Again, it is worthwhile to stress that the Finnish development is by no means unique. Observations made in other European countries convey

Table 7. *Reference Sources (Citations) in Finnish Doctoral Dissertations in Sociology by Country of Origin and Decade*

Country of Source	Year of publication			Total
	1950—59	1960—69	1970—78	
Finland	30	38	44	39
Scandinavia	8	9	8	8
UK	7	10	9	9
Other Western Europe	3	5	5	4
USSR	0	0	2	1
Other Socialist Countries	0	0	1	0
USA	51	39	28	36
Other Countries	1	0	2	1
Total %	100	101	99	98
Number of References	882	2209	2406	5497

a similar picture. The American influence was strongest in the immediate post-war period when teaching and research in social sciences at European universities had still to be created or at least re-established. European social science has gradually acquired the ability to stand on its own feet.

The Nature and Content of the Finnish-American Exchange

The strong position of American scholarship in Finnish social science has, of course, not been without impact on Finnish society. The most clear-cut examples of direct influence on policy measures can be found in the fields of economic policy and marketing. After the Second World War methods for constructing national accounts, growth rates, and national products became routine devices for institutions and individuals influencing Finnish national economic policy. They were developed by a set of international scholars and

researchers, among which American economists clearly had a leading role. In the field of marketing the American influence is obvious both in theory at the business schools and in practice in the business world (See Honko, 1966). In other fields the impact of American social theory and methodology was probably as great, although the influence was more subtle and harder to detect immediately.

A fruitful point of departure for a brief analysis is revealed in Table 1, which clearly indicates that the American influence has been particularly strong in theory and methodology, whereas citations of direct empirical information have been of less importance. American social scientists have conventionally been portrayed as those who systematically promoted the introduction and use of empirical research methods into the social sciences. They developed methods for mass observation, the sociological field studies, the behavioral approach in politics and the econometric methods in economics. The well-known American scholar Robert K. Merton expressed a common notion when he mockingly wrote in 1951 that "Americans know what they talk about but they do not talk about very important things; Europeans do not know what they talk about but they talk about things that matter." By the time Merton wrote this sentence, however, patterns of influence had already changed. American scholars had imported many old comprehensive but speculative social theories from Europe and, in addition, had already developed powerful theories of their own. It was, in fact, the very combination of theory and systematic demands for an empirical research methodology that became the hallmark of American social science (Allardt 1968, pp. 151—168).

Still, one must emphasize the importance of American social science to empirical research methodology in Finland. When social science at Finnish universities developed after the war, it happened in a

milieu that already had a rather strong positivistic orientation — with beliefs in empirical observations and quantitative measurement. American social science thus was easily accepted in Finland. Finnish academic circles felt very much at home with the "variable language" characterizing so much of American social science of the 1940's and 1950's.

Many approaches, devices, and social routines that now are fairly firmly institutionalized in Finnish society were in fact introduced together with American social science. A fairly recent exposé of Finnish political science from 1960—75 with the telling subtitle "From Behavioralism to Policy Analysis" (Anckar 1978, pp. 105—126) reveals, if one reads between the lines, many examples of almost institutionalized American inventions. From the U.S. came public opinion polls, large-scale voting studies, systematic observations of coalition formation revealed by roll calls in the Parliament, the emphasis on pluralism, studies of pressure groups, the systematic study of structural conditions about the functioning of political democracy, and content analysis of party ideologies, to mention only a few items. Some fields, such as the study of mass communication, marketing, and sociolinguistics were almost entirely American inventions as university subjects. The same is true about a great variety of techniques and approaches nowadays taken for granted, such as game theory, the theory of decisions, and computer technology. With the development of the teaching of social sciences at a great number of Finnish universities, and with the diffusion of many originally American social science concepts into the Finnish and European mass media, direct borrowing from the United States has lessened. One thing is clear: despite a declining reliance on American sources and the increasing maturity of Finnish social science, American influence in the social sciences has been much stronger than that of any other foreign country.

It goes without saying that the dependence on American sources and influences has at times been heavily criticized, and even violently attacked. This criticism was most intense at the turn of the 1960's and was a Europe-wide phenomenon. Moreover, some of the criticism was delivered by American social scientists using their own social science concepts and devices. (Compare Lipset 1966, p. 129).

Finnish influences on American social science are marginal, at best. This circumstance is due not only to the difference in size between the social science communities, but also to the specific country-boundness of the subject matter. It is, however, interesting to note that an increasing proportion of Finnish scholars visiting the United States is engaged not only in research but in teaching as well. Within many social science disciplines, perhaps especially in sociology and political science, many joint research projects have been carried out with at least comparative contributions by Finnish scholars. Among cooperative fields of research are electoral studies in political behavior, studies of political radicalism and voter alignments, analyses of individual modernization, studies of the social costs of inflation, mass communication, and studies of drinking behavior and alcohol consumption. Individual contributions by Finnish scholars in fields such as international economics, marketing, investment behavior, community planning and development, women's studies, political sociology, studies of social stratification and mobility, organizational communication, social indicators, and the methodology in administrative research have been recognized and appreciated by their American colleagues. In the adjacent field of psychology, noteworthy and appreciated contributions have been made in cognitive psychology, the study of stress and aggression, the analysis of moral development in children, and factor analysis.

Diffusion of American Scholarship and Knowledge

It is apparent that a part of American social science made its way to Finland through literature and printed material of various forms. American culture exerted a general influence in Western Europe, and American influences were sometimes conveyed to Finland, in turn, by publications from Sweden, Germany and the United Kingdom. Along with the professional literature personal channels of communication played a crucial role. Through systems of grants mainly provided by the American government and by American private foundations, American scholars have visited Finland, and Finnish scholars and students have studied, taught, and conducted research in the United States. In the field of the social sciences the grants with the greatest impact have probably been those given to graduate students preparing to take their Ph.D.'s after their return home. Particularly in the 1960's it was the rule rather than the exception that scholars appointed to professorial chairs at Finnish universities in the major social sciences had spent some time at American universities and research institutes.

There is, of course, variation among the different fields in the social sciences. Of the present professors and associate professors at Finnish universities 44 % in economics and economic history, 43 % in political science, public administration and political history, 39 % in business administration, and 33 % in sociology and social administration have spent some time at American institutions. Only in the last decade has there been serious competition from other countries in terms of the number of grants offered and the interest of prospective grantees.

A list of the American institutions visited by Finnish professors and associate professors in the social sciences indicates that the exchange has been professionally very

profitable for the Finns. The most often visited American institutions, in order, are Harvard, the University of California at Berkeley, Stanford, the University of Michigan, Cornell, The University of Wisconsin at Madison, Columbia, U.C.L.A., the University of Chicago, and Princeton. The list includes most of the best graduate schools in the United States. Finnish social scientists have indeed been exposed to American scholarship of the highest quality.

An increasingly important form of professional contacts in the social sciences is being provided by joint comparative research projects, sometimes carried out bilaterally, but mostly in several countries simultaneously. Many Finnish researchers have benefited from participation in such research endeavors. Some studies have been initiated by Finns, but most frequently such projects have been both initiated and inspired by American scholars. At any rate, the new forms of cooperation and learning reflect at least partially the increased maturity of Finnish social scientists as well as a new ability to learn by participation on a more equal footing.

Although exchanges enabling Finnish academics to go to the U.S. and American scholars to visit Finland have at times been questioned, it can hardly be over-emphasized that Finnish social science owes very much to the influence, help, and inspiration of American social science and individual American scholars. It is to be hoped that both governments will understand the utmost importance of maintaining and further developing programs of exchange. The large number and high qualifications of the applicants for these exchange scholarships testify to the importance attached to these programs by the Finnish social science community.

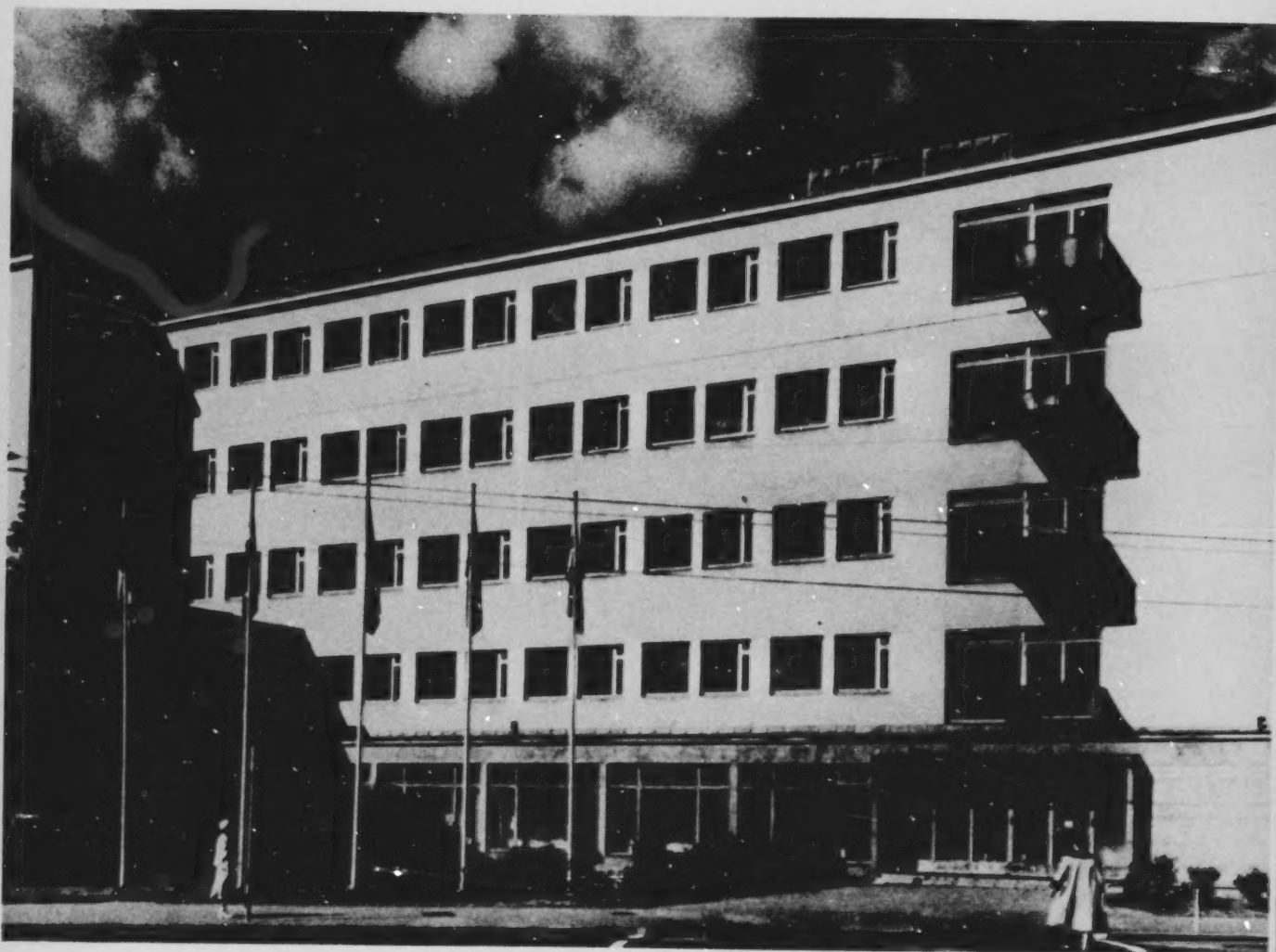
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*The Swedish School of Economics, Helsinki, 1952—53.
Architect: Kurt Simberg.*

*The School is situated adjacent to the Helsinki School of Economics (illustrated on page 46),
and it has the more clear-cut style characteristic of Finnish architecture of the post-war
period.*

Photo: Ooaskainen



Natural Sciences

KAARLO HARTIALA

Chancellor

University of Turku

and

OLLI LEHTO

Rector

University of Helsinki

Research in natural sciences differs from many other scientific disciplines. Since it concerns nature and not language or other social phenomena, its problems and results are to a great extent universal. This is why it calls for international contacts, publications in common scientific languages, and teaching and research conducted at international standards. Personal contacts with colleagues in other countries and participation in international scientific meetings are of prime importance.

Most scholars who were in leading positions in Finland before and shortly after the Second World War had indeed such interactions with other countries. Most of them had completed their studies or carried out research in areas where German was the main scientific language. Contacts with other Scandinavian countries as well as with Estonia and Hungary were numerous. A minority had been to the United States and even fewer to England and France.

These contacts were reflected in the language of publications. The Year Book of the Faculty of Science at the University of Helsinki shows that during the academic year 1944—45, 57 original research reports were published in German, 8 in English and 1 in French. Four years later, however, in 1948—49 a marked change was clear: papers written in English and German were virtually equal (35/34). Thereafter, younger scholars, specially those who were given the opportunity to make research visits to the United States or England, started to use English in their publications. This change applied to the series published by the Finnish Scientific Academy as well as those published by various scientific societies. Simultaneously, the articles published in international journals by Finnish scholars doubled.

Finland has had many well-known scientists. One of the earliest was Gustaf Komppa, professor of organic chemistry in the Technical University of Helsinki, who

gained an international reputation through his successful studies in the synthesis of various organic compounds. One of his best known achievements was the elucidation of the structure of camphor and development of the first method to synthesize this compound, an important drug at the time (1902—03). Since then chemistry has developed strong traditions in this area, mainly due to the close dependence of its economy on the pulp and forest industry.

Biochemistry as a branch of organic chemistry was originally generated for the needs of economic life and medicine. Agriculture products, mainly butter and cheese, have long been important Finnish export products. Research into the quality improvement and preservation of these products during lengthy transit was an early and important undertaking. The basic research by A. I. Virtanen, professor of Chemistry and later member and chairman of the Finnish Academy, dealt with the bacterial fermentation phenomena, the maturation of cheese and the aroma substances in butter. In recognition of his scientific contributions, Prof. Virtanen was ultimately awarded the Nobel prize in chemistry in 1945. He had contacts with the outstanding experts of biochemistry and nutrition throughout the world.

In mathematics, Ernst Lindelöf was one of the world's leading names in complex analysis at the beginning of the century. Many of his students subsequently gained international recognition. In the twenties, the notion "Finnish school of the theory of functions" became established, with Rolf Nevanlinna (1895—1980) as its most notable representative. The tradition continues, so that still today, the main part of the mathematical research in Finland is concentrated on complex analysis.

The first important contacts of Finnish mathematicians were with France, but later Germany rose to a dominant position which lasted until World

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War II. Now the leading role is incontestably played by the United States, whose importance has steadily increased after the war in spite of the fact that contacts with several other foreign countries have multiplied.

Prior to World War II, many other natural sciences had also been well represented by Finnish scholars. However, the war seriously disrupted these fields. Symbolic of this disruption was the ruin by bombing of Professor Komppa's private laboratory with its valuable equipment as well as material. Libraries developed ever larger gaps in their holdings of scientific journals and periodicals. Laboratories and equipment were poorly supported, if at all. The generous support and opportunity offered by the ASLA-Fulbright program as well as by other science foundations were to produce an end to this decline and a marked improvement.

A study of postwar Finnish-American scholarly interaction reveals that 40 percent of the professors have worked in the United States. Visits have been rather long, the majority more than 1 year, some as long as

2—3 years. These same statistics confirm the obviously great impact of these visits on the careers of our scientists. In mathematics and computer science, 26 out of 36 professors have participated in the exchange programs. In physics the corresponding ratio is 27/46, biochemistry 15/34 and biology 16/34.

The sponsor of these visits has in 8 out of 10 cases been an American organization. Also the research visits from the United States lasting — as in all above cases — for more than 2 months, have in 65 percent of the cases studied been financed by American sources. The chief source of support other than American universities and institutes has been the ASLA-Fulbright program.

The authors of the following reports, all now holding academic chairs, have spent at least one year as post-graduate fellows, research associates or teachers in the United States. Their impressions are given as examples of the undeniably significant impact of these interactions on the present status of their disciplines.

*University of Jyväskylä, hallway of the main building, 1952—57.
Architect: Alvar Aalto.*

After the war Alvar Aalto rejected the abstract and immaterial quality of Functionalism and began to use Finnish natural materials brick, copper, and wood. At the same time his vocabulary of spaces and forms took on a certain heaviness and an air of history. The new university was designed as an open campus, and it is located adjacent to buildings of the Teachers' Seminary, dating from last century.

Photo: Heikki Havas



The Finnish Connection: Mathematics

LARS AHLFORS
Department of Mathematics
Harvard University

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As a native Finn and naturalized American with a career in teaching and research in both countries I have been fortunate to enjoy frequent and fruitful contacts with my Finnish colleagues. For this anniversary volume I should like to present, quite informally, my own views on the give and take in the area of mathematics between the two countries. Although I was never a Fulbright or ASLA scholar, I believe I have seen enough from the sidelines to be able to form a valid judgment.

Finnish mathematicians have long been known and appreciated outside their country, but before the war their international relations were mostly restricted to Europe, mainly Germany, Switzerland, France, and the Scandinavian countries. In the aftermath of the war, cultural relations between nations were almost at a standstill, and it is not surprising that it took several years before the exchange of ideas would flourish again. Progress to normality was greatly speeded by the far-sighted ASLA-Fulbright program, and mathematics, with its relatively modest need for funds, was an obvious beneficiary.

In the recent history of mathematics few names have been better known than that of Rolf Nevanlinna. His name was known world-wide, and he had a great admirer in Hermann Weyl at the Institute for Advanced Study in Princeton. Nevertheless, it took a long time before his works were studied by the rank and file of American mathematicians. It is perhaps significant that his first followers in America were European imports. The situation improved when some of Nevanlinna's own students, including this writer, were in a position to disseminate his ideas in person. Later on, but not before 1950, Nevanlinna himself visited several American universities, and the number of his direct and indirect students grew rapidly.

In the immediate post-war period basic science, including mathematics, was mainly supported by the

Defence Department. Spurred by Sputnik, the nation had become aware of the strategic importance of science, both pure and applied, and funds for research by domestic and visiting scholars became more easily available. I remember with pleasure the many visits, during the peak of my career at Harvard, by outstanding Finnish mathematicians, young enough not to have been my students in Finland, but eager to continue their research and learn more in a stimulating environment.

These visits were mainly financed by government contracts, later to be supplemented and replaced, as far as Finnish visitors were concerned, by ASLA scholarships and other grants from Finland. In the opposite direction, more and more young American mathematicians, with or without Fulbrights, found their way to Finland where, in spite of language difficulties, they were soon befriended by their Finnish colleagues. There is no doubt in my mind that the ASLAs and the Fulbrights were fundamental in cementing this friendship, which continues to this day.

The same exchange took place at many universities, but perhaps nowhere as intensely and systematically as at the University of Michigan. I have avoided mentioning names, but it would be impossible not to single out the role played by Frederick Gehring. The time he has spent in Finland must add up to several years, and even when not in Finland he remains in constant touch with his Finnish friends, and yearly a stream of Finnish students and mature mathematicians arrives in Michigan on his initiative. Not only did he learn fluent and correct Finnish in record time, but he was also able to adapt to the Finnish life style. His frequent visits have made him almost an honorary Finn, a visible sign being a well-earned honorary degree from the University of Helsinki.

My own relations with Finland are of course a natural extension of my activities as student and teacher

in my native country. In a way I am still a Finnish mathematician, steeped in the tradition of the patriarch and nestor of Finnish mathematics, Ernst Lindelöf. Even though the present generation never knew him in person, his spirit is still present, and I feel that I have

had a role to fill as a connecting link. At the same time I am also aware of being a member of an active group of mathematicians that pursues a fairly unified program and has established roots on both sides of the Atlantic.

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*University of Turku, main building and library, 1954—59.
Architect: Aarne Ervi.*

The university complex is built around a central outdoor space on a hilltop adjacent to the historical center of Turku. The architecture reflects stylistic features of the International Style, although Finnish architecture of the 1950's, in general, had a distinct regional character which became more evident in residential and religious buildings.

Photo: Jarmo Koskinen



Physical Chemistry

JOUKO KOSKIKALLIO
Department of Chemistry
University of Helsinki

Relatively few Finnish chemists have completed all of their studies abroad. In contrast to this, however, it is not at all rare for a Finnish chemist to go abroad to defend his or her doctoral dissertation. Indeed, a considerable number of those holding the doctorate in chemistry have conducted research at foreign universities and research institutes for periods ranging from a few months to one or more years. Of these, it appears that the greatest number has been completed in the United States and, additionally, many have been in Canada and England, as well as France, Germany, and other European countries.

The fact that the proportion completing work in the United States is so large is the result of three factors: its significant contribution to research in chemistry, the systems of scholarships and grants that are available, and the increased importance of English. Perhaps the most significant of these factors from the standpoint of the Finnish chemist is the system of ASLA and Fulbright grants. I myself have been abroad for periods ranging from six months to a year visiting Switzerland, England, Canada, and the United States. My most recent visit was to the United States, and it was financed by an ASLA-Fulbright grant. All of my trips have been successful from the standpoint of the research I was able to conduct. I have been able to conduct research in fields related to my own specialty but nevertheless differing from it. I consider this to have enriched and broadened my views, in addition to having provided me with many inspirations and ideas. My own work has begun to approach disciplines which I have not studied before but are close to my own. My dissertation was about the kinetics of reactions and, after returning from Switzerland, I began to study certain reactions which are connected with polymers. In Canada I became acquainted with a method for measuring the speed of reactions which take place under high pressure, and I continued my research in

this field after coming back to Finland. In England I did research into photochemical reactions and ever since then photochemistry has been the main object of my research. When I was in the United States my host institutions were the University of California at Santa Cruz, where I was able to study photochemical reactions in the group directed by Prof. G. Hammond, and Wayne State University in Detroit, where I also studied photochemistry, this time in the group headed by Prof. E. Lim.

Pursuing studies and conducting research abroad offers an excellent opportunity to become acquainted with the content and methods of teaching as well as with the graduate studies at different universities. The large number of papers presented by visiting scholars, as well as the seminars which are part of the instruction given by a specific university, provide an excellent survey not only of the results of the research carried out in the different branches of chemistry has produced, but also of the specific problems which are central to each of them. Personal discussions with visiting scholars and, even more significantly, with colleagues working in the same department or library, play an important role in resolving the problems which inevitably arise in conjunction with any research project. This results in the formation of close personal friendships of long duration which can be given new life when friends meet, even after a long interval, at conferences or in conjunction with other trips.

When the stay abroad lasts for more than a few months, the possibility presents itself of visiting some of the other universities and research institutes in the country. I have always considered myself to be a welcomed visitor when I have enquired about the possibility of coming to familiarize myself with some other laboratory and the research being conducted there. Presenting my own papers in the capacity of visiting scholar also provides an excellent opportunity

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for meeting other colleagues interested in the same type of problems. When I was visiting the University of California at Santa Cruz I went to visit the departments of chemistry at the campuses in Berkeley, Santa Barbara, and Riverside, as well as the research institutes at Stanford University. At all of the departments I visited, everything connected with studies and research in which I had expressed an interest was explained to me obligingly.

A visit abroad also involves a few difficulties, of which the problems of housing a family, taking care of problems connected with the children's schooling, and arranging an appropriate job for one's spouse should be mentioned. When abroad, one is helped in many ways. In California people were extremely open and we received all the help we needed — very often without even having to ask. A scholarly exchange provides an excellent opportunity to acquaint oneself with the customs, culture, and people of the host country, not to mention the opportunities it offers to make trips to the

famous sights of the country and to participate in various types of activities. Having children attend school in a foreign country enriches them, not only from the standpoint of improving their language abilities, but from that of their overall development as well.

The opportunity to participate in research conducted abroad on a relatively long-term basis is an enriching experience in many ways. It is of particular importance from the standpoint of the development of science in a small country such as Finland. A scholarly exchange is of the greatest benefit when the scholar is in possession of the broadest possible basic knowledge. Chemistry is an international science which is highly specialized and makes use of the latest technology. In a country the size of Finland it is impossible to conduct research in all the specialties or to acquire a full complement of special equipment. A stay at a foreign university provides the best opportunity for continuing education which a Finn can obtain.

*Porthania, the University of Helsinki, 1957.
Architect: Aarne Ervi.*

Along with Viljo Rewell, the designer of the Toronto City Hall, Aarne Ervi was a leading representative of the International Style in Finland. The university building is the first comprehensive application of prefabrication technique in a public building in Finland. Since Ervi was one of Aalto's collaborators, his work has a warmth and coziness despite its frequent use of industrialization and new artificial materials.

Photo: Eero Troberg



Physical Organic Chemistry

OLAVI VIRTANEN
Department of Chemistry
University of Oulu

64 Professor P. O. I. Virtanen was appointed professor of physical chemistry in December 1969. Shortly after this appointment he began to correspond with experts in his field, and in August 1970 he joined the research team of Professor C. D. Ritchie in the Department of Chemistry at the State University of New York at Buffalo. Professor Ritchie was an internationally well-known scientist for his research on chemical reaction kinetics, the field which was also the special topic of Virtanen's research. At Buffalo Virtanen's special research task during his two-year tenure was the determination of the reaction rates of relatively fast reactions, using at that time the rarely employed stopped-flow technique. This method makes it possible to mix two solutions containing the components of a chemical reaction in about 0.003 seconds and then follow the progress of the fast reaction by fast spectrophotometry.

The research gave rise to the discovery of a new equation, called the N_e equation, which is suitable for the correlation of the rates of certain reactions. The equation differed from the ones presented earlier, because it was very simple, containing only one parameter, and, what was important, this parameter was assumed to describe in a new way an inherent, chemically important property of reacting nucleophiles.

After Virtanen's return to Finland in summer 1972, construction of similar stopped-flow equipment was begun according to the drawings delivered by Prof. Ritchie. Since 1973 the apparatus has been used at Oulu for the studies based on the N_e equation, now generally accepted, as well as for the measurements of the rates of other fast reactions.

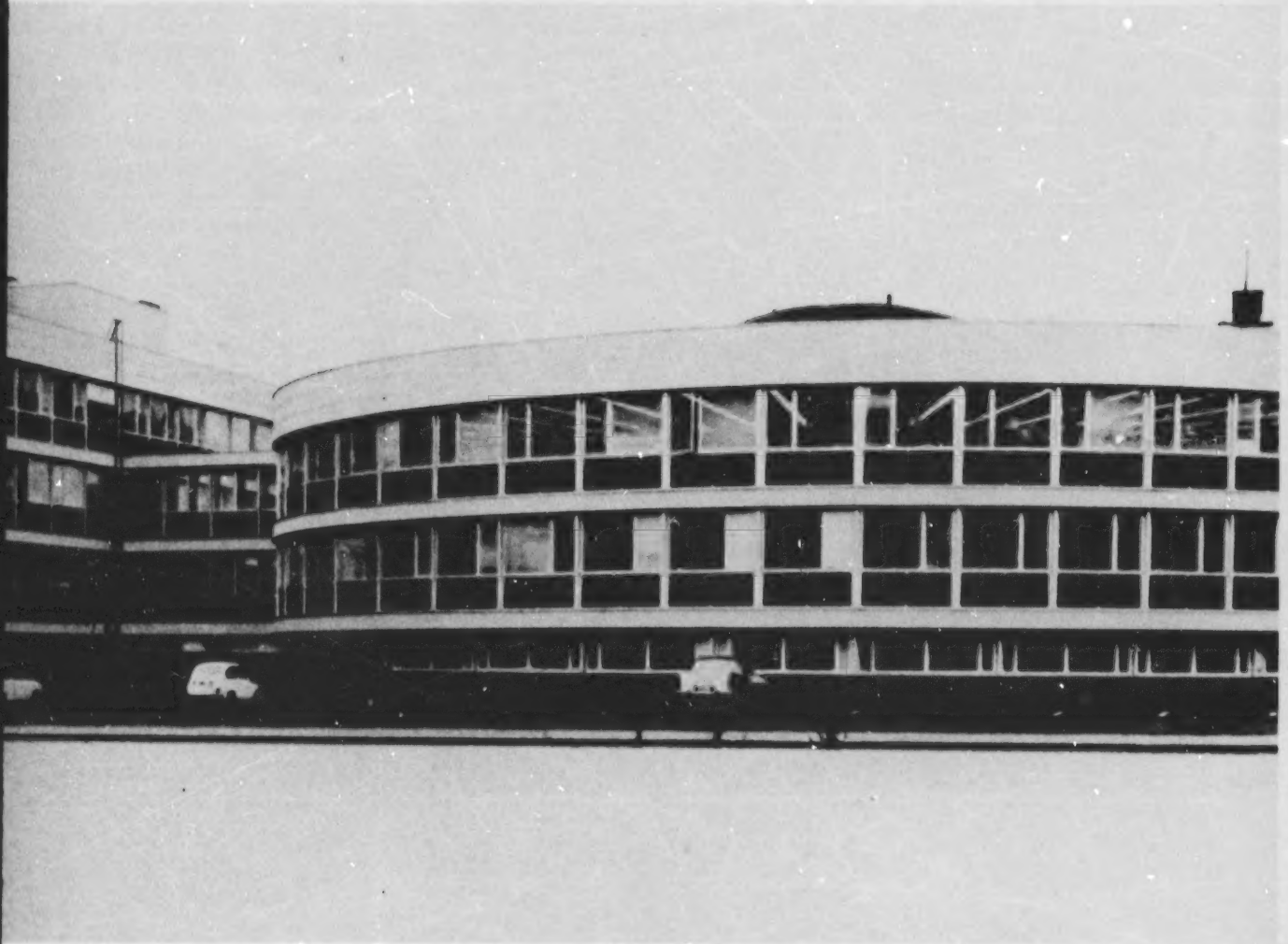
In the spring 1980 Virtanen went on a conference tour sponsored by the Fulbright short-term program. He also visited Buffalo once more and was brought up to date on changes in the earlier stopped-flow equipment and in its use. The following year 1980–1981, Prof. Virtanen returned to the Buffalo laboratories. On his return, he computerized the stopped-flow apparatus at Oulu adopting partly the Buffalo model.

How important has this international cooperation been? As noted in the Buffalo experiences, new techniques and know-how have been introduced into the Finnish laboratory as a consequence. Working as a member of an internationally well-known research team is important for a scientist from the northern part of a small country, because it serves to expand his research considerations and to develop contacts with still other scientists working in the "frontier" of research in reaction kinetics.

*The Institutes of Odontology at the University of Turku, 1960—65 ; 63—65.
Architects: Jorma Järvi, Asko Halme, Antti Ilanen and Osmo Koskela.*

From the mid 1960's on Finnish architecture has been dominated by a rationalist approach which has found its motivation in the rapid industrialization of Finnish construction. The Institute represents strictly articulated architecture with an apparent association with prefabrication.

Photo: Rainer Johansson



Biochemistry and Molecular Biology

VEIKKO NURMIKKO
Department of Biochemistry
University of Turku

66 The development of teaching and research in biochemistry at the private University of Turku in the 1950's and 1960's provides a clear example of the importance and significance of external collaboration and support. The Department of Biochemistry began its operation in 1957 with a very modest appropriation and barely adequate laboratory facilities, offering only basic training, until 1959 when the United States Department of Agriculture awarded a sizeable five year research grant to the Department laboratory for specific project work. This grant triggered a large amount of research activity which had a simultaneous and immediate impact on the teaching program as well. In short order biochemistry became a sought after area of study at the University.

The grant support was also instrumental in making possible conference and research visits to the United States. The head of the Department at Turku (Professor V. Nurmikko) visited Washington D.C. in 1959 and joined the research group of Professor E.E. Snell at the University of California, Berkeley, during 1960—61. At Berkeley he collaborated with Professor Snell in the latter's advanced laboratory while searching for and investigating new enzymes. Thus began a project which thereafter has been continued at Turku.

Nurmikko held a research appointment at Berkeley again for two years in 1964—66 in Professor Snell's group, and he pursued specific problems in enzyme chemistry. In addition, he pursued his interests in molecular biology with emphasis on the action of genes and nucleic acid chemistry. This work was appropriately conducted at Berkeley because of its worldwide reputation as a leading research center in biochemistry and molecular biology.

Following these visits several new research projects were initiated in the laboratory at Turku. For example, in the area of gene technology the first artificial gene transfer in Finland was accomplished in 1976 — barely three years following the use of plasmid as vector in gene manipulation in California.

One additional consequence of the continued collaboration and interaction with colleagues in the United States has led to a substantial number of overseas research visits by the laboratory's younger scientists. Presently, almost all of the Ph.D. level staff have carried out research in U.S. universities and research centers, sometimes on several occasions. Such research visits and scientific collaboration continue to be of great significance considering the leading role of the United States in the biochemical sciences.

Medical Biochemistry

PEKKA MÄENPÄÄ
Department of Biochemistry
University of Kuopio

My own experiences with Finnish-American academic and professional exchanges date back to a period that was exceedingly active both from the standpoint of research and research visits within the field of biochemistry. Therefore, I would like to examine these from the standpoint of one university department during the period from 1960 to 1980. The department concerned is the Department of Medical Chemistry, University of Helsinki.

During the late 1940's a few Finnish specialists in the field made individual research trips to the United States. Nevertheless, it was the 1960's that saw an extraordinary expansion in those specializations within biochemistry that are close to medicine. This was the result of two factors. First, from the end of the 1950's and on into the following decades great advances were made in molecular biology. These can be seen particularly clearly in those problems of biochemistry that are close to biology and medicine. The discovery of the structure of DNA (1953), the discovery of messenger RNA (1960—1961), as well as unraveling the genetic code, clarification of the structure of biological membranes, the mechanisms of protein synthesis (1961—65), and the genes in bacteria as well as the signals regulating them (1965—70) are but some of the milestones of this period. Since most of the leading groups of researchers in these fields were working in the United States, it was natural that upon completion of their dissertations most Finnish researchers desired to continue their work at leading laboratories, which were, of course, also in the United States. In this respect the new chairman of the department (1964—), professor Johan Järnefelt, who had a considerable amount of prior experience as a researcher working abroad, provided the department with an encouraging example and valuable support.

The second factor that made the increase in graduate studies in the sciences possible at the University of

Helsinki during the 1960's was the rapid growth of university resources, which was accompanied by the establishment of several new assistantships. Consequently, the number of dissertations increased considerably (see table). Contacts with groups of researchers working in the United States began either with the help of personal contacts that had already been established by older Finnish researchers or directly at the initiative of university researchers. Visits for purposes of research were financed through the system of international grants arranged by National Institutes of Health, by American universities, or by grants issued by American research organizations. (Table 8.)

When I made a research trip to the United States, my host institution was the Department of Pediatrics at Stanford University. I worked there during the late 60's and early 70's for a period of about three years. I had been preceded at the department by my compatriot, Prof. Niels Räihä, who had also directed my

Table 8. Research visits to the U.S.A of Ph. D's, professors and associate professors of the department of Medical Chemistry, University of Helsinki

	Dissertations		Appointed to a professorship or associate professorship	
	No.	(research visits to the U.S.A. more than one year)	No.	(research visits to the U.S.A. more than one year)
1960—64	5	4	4	3
1965—69	16	9	6	4
1970—74	14	9	3	3
1975—79	18	5	—	—
Total	53	27	13	10

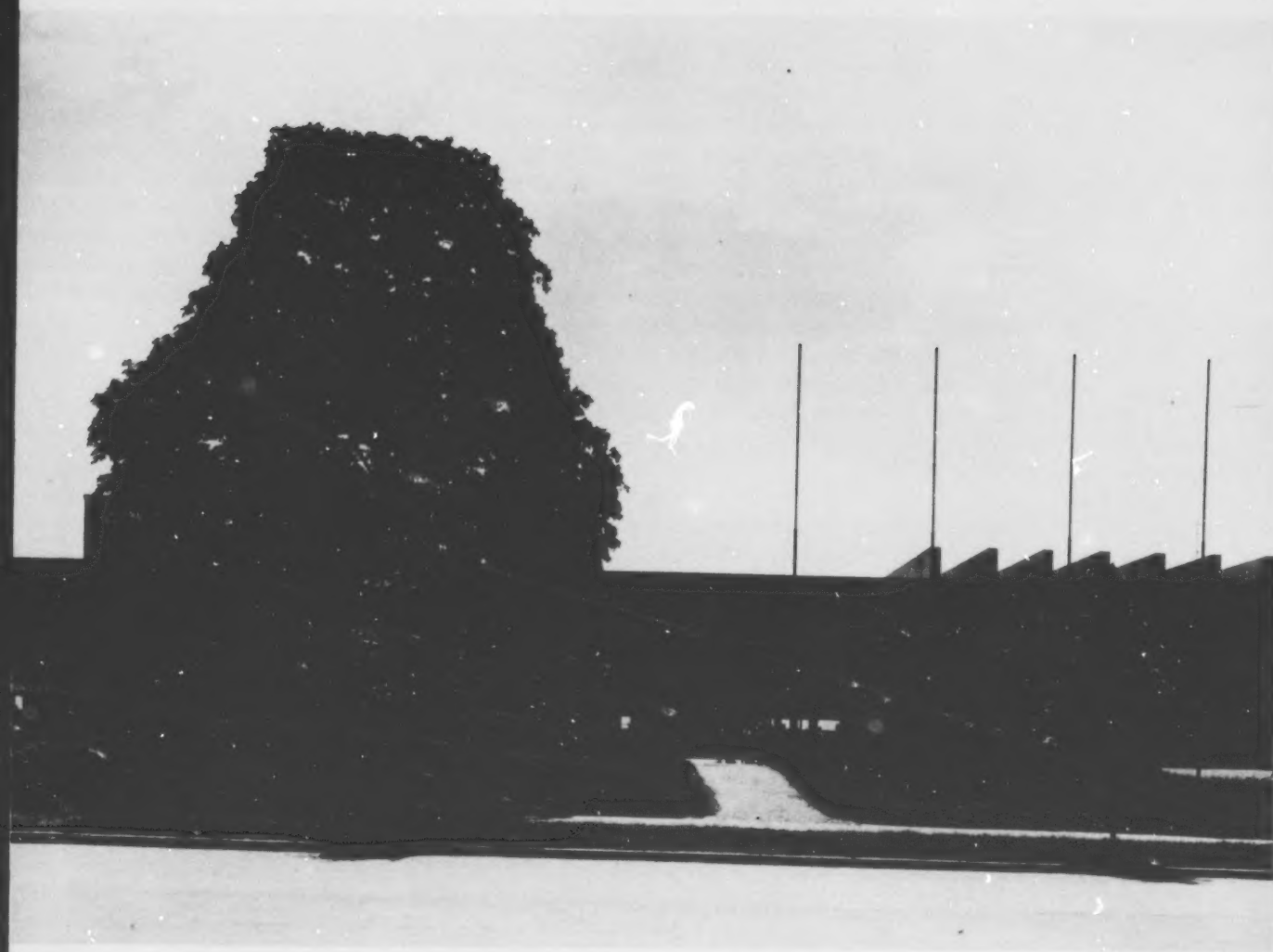
68 dissertation. The chairman of the department, Professor Norman Kretchmer, was an enthusiastic supporter of international scholarly exchange; and during that time, the researchers working there represented several different nationalities. The free, efficient, and excellent quality of the research atmosphere at Stanford University could not help but leave a lasting effect on all the researchers who visited there. In addition, it led to the establishment of contacts on a personal level, and these have enabled the tradition of scholarly exchanges to continue.

The figures in the enclosed table indicate that many researchers who have completed dissertations at the Department of Medical Biochemistry, University of Helsinki, have subsequently been appointed to professorships in various fields at universities in Finland or abroad. With respect to these positions, the significance of scholarly exchange is obvious. The end of the 1970's, however, appears to have witnessed a change in scholarly exchanges; with increasing frequency the country visited has tended to be a European one rather than the United States.

*The University of Tampere, main building, 1958 ; 60.
Architect: Toivo Korhonen.*

The main building of the University of Tampere (Earlier Tampere School of Social Studies) represents the extreme simplicity of form and clarity of functional solution typical of Finnish architecture of the late 1950's and the early 60's. The higher volume contains spaces that require a long structural span (entrance hall, foyer, auditoria, library), while the perpendicular lower mass incorporates office and auxiliary spaces.

Photo: Simo Rista



Plant Anatomy and Physiology

SIRKKA KUPILA-AHVENNIEMI

Department of Botany
University of Oulu

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In 1950's, few Finnish botanists worked on physiological problems. Research was mainly done in the fields established by Runar Collander and Harry Waris. Lack of equipment reduced interest in the new problems and methods which at that time were fascinating scientists all over the world. Interest in plant anatomy was so minimal that it was not regarded as an independent branch of botanical research.

One of those Finnish scientists who understood the necessity of keeping pace with the accumulating knowledge was Eeva Therman. She urged her students to travel abroad and work in different laboratories. Sirkka Kupila-Ahvenniemi was among those who, after her graduation in 1958, had the opportunity to work in several well-known laboratories in the United States.

Work with Dr. Herbert Stern, first in Canada and later for a short period in Urbana, Illinois, familiarized Sirkka Kupila-Ahvenniemi with the rapidly developing nucleic acid research. The acquired knowledge formed an important basis for her own research on crown gall disease as well as for her students at the Universities of Turku and Oulu.

Research on crown gall soon advanced to a level where further experimentation required the use of controlled growth chambers. Necessary facilities were available at the University of Wisconsin, Madison, where Dr. Therman (now Patau) settled in the early 1960's. Grants from several sources made it possible for Kupila-Ahvenniemi to work with her for a number of periods and use the facilities of the Phytotron at Wisconsin. These visits and the joint research projects formed an important channel through which the plant

physiologists at Oulu have throughout the years been able to maintain contacts with a number of American scientists.

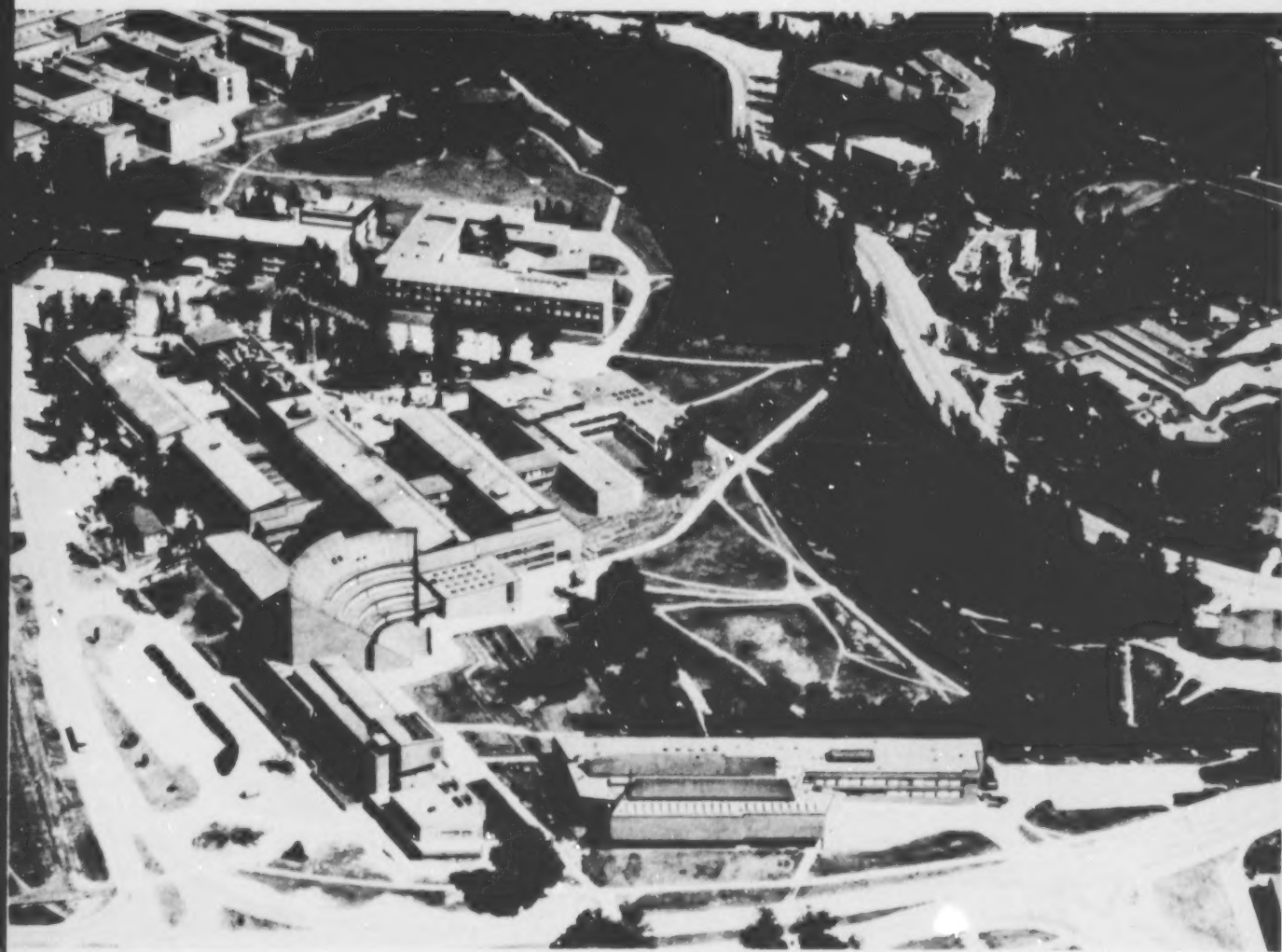
The papers on nucleic acids attracted the attention of the United States Department of Agriculture. In order to help the research in plant physiology in Finland as well as to start joint projects on the flower development of coniferous trees, Kupila-Ahvenniemi obtained a grant for five years (1962—67). The significance of the grant was accentuated when she was appointed professor at the newly founded University of Oulu, then the northernmost university in the world. This grant made possible the purchase of certain basic equipment, including a centrifuge, now twenty years old but still in good condition and in constant use. Above all, the grant brought contacts which were of great value for the laboratory staff. The development of strobili, and seasonal changes in pine buds have ever since been under intensive study at Oulu.

In the field of plant anatomy the work of Professor Katherine Esau at the University of California, Davis, aroused interest in plant development and cell differentiation. Supported by ASLA grant, Kupila-Ahvenniemi worked with her and Professor E. M. Gifford for the academic year 1961—1962. A new comprehension about plants as individuals gained during this period was transferred to students at the Universities of Turku and Oulu. The early experiences at Davis and the visit to the University of Michigan, Ann Arbor, were also helpful when the Institute of Electron Optics was planned at Oulu.

*Helsinki University of Technology, Espoo, Otaniemi, 1953, 60—61; 62—64
Architect: Alvar Aalto.*

Alvar Aalto made the general plan for the vast land area of the Institute of Technology and the State Institute of Technical Research at the end of the 1940's. Aalto himself designed the main building, the library, the shopping center, the gymnasium and the heating plant. The multitude of educational and research facilities as well as housing for both staff and students have been built in various stages by a number of architects who have attempted to adapt their buildings to the atmosphere set by Aalto. The architectural landmarks of the campus include the Student Chapel by Kaija and Heikki Siren and the Dipoli Student Club House by Raili and Reima Pietilä.

Photo: Rauno Karhu



Medicine

KAARLO HARTIALA

Chancellor

University of Turku

and

LAURI SAXÉN

Department of Pathology

University of Helsinki

72 The Second World War and its consequences caused a fundamental and permanent change in the orientation and direction of research of the Finnish school of biomedical sciences. Until 1939, the Finnish scientific community was almost exclusively oriented toward continental Europe and Scandinavia with its German cultural traditions. Many of the leading Finnish scientists had received their post-graduate training in Germany. The language of most medical textbooks was German, as were the texts of the vast majority of the papers written by Finnish scientists and published in Finnish, Scandinavian, or European journals.

The wars of 1939–45 led to a profound change in Finnish biomedical traditions. After a long and almost complete standstill of all research activities, the scientific community recuperated slowly in the politically confused and economically depressed conditions. The pre-war generation with broken international contacts continued mostly along the lines adopted in the 1930's, while the new generation, still at the medical schools, was searching for new directions and new contacts. English became the scientific language, the ties to the older generation had loosened after a long time lag, and many of the traditions were broken. The post-war generation of young Finnish scientists was ready for reorientation, but it badly needed both international contacts and support in its own linguistically and geographically isolated country. In that situation, the role of public and private sponsors in the United States proved to be decisive.

Numerical Data

The responses to the questionnaire prepared for this book reveal that about half of the Finnish professors holding chairs in medicine have made one or more research visits to the United States. Altogether, 123 senior staff members representing biomedicine and

nearly all clinical specialities have participated in the exchange programs. Of the age group born in 1920 or earlier, 60 % received their post-graduate training at American universities. This fact alone indicates that the post-war professional and intellectual gap was well taken care of.

A quote by an outstanding younger professor with a high international reputation in modern immunology reflects the impact of these visits on the recent progress of medicine in Finland: "I belong to that generation whose members most likely would never have become scientists without the opportunity given by the organizations of the United States."

The former Rector of the University of Helsinki, Professor Nils Oker-Blom, who is also the chairman of the National Institutes of Health (N.I.H) nominating committee in Finland, states: "The N.I.H. and ASLA funds have been decisively important for the development of Finnish biomedical sciences."

As to the sites of post-graduate studies various departments of N.I.H., Harvard University, the University of California at Berkeley, and the University of California at Los Angeles top the list. They are followed by the Universities of Pennsylvania, Columbia, Nebraska, Michigan, Johns Hopkins, Rochester, and Minnesota.

The ASLA funds and the N.I.H. have sponsored nearly half of the visits.

On the other hand, research visits to Finland by American medical and biological specialists are less numerous, in spite of the close professional contacts between the two countries. Only a few Americans have come to teach in Finland, and nearly 90 % of the 56 scientists revealed by our study have come here to carry on research. There is a clear reason for the small number of this kind of exchange: despite frequent requests from Americans to be accepted to Finland's leading biomedical research departments, lack of

institutional funds has made it impossible. This fact calls for serious attention from the Finnish side.

The ASLA funds or American sponsors (universities, the N.I.H. and private foundations) have covered the cost of 80 % of the visits to Finland from the United States.

What concrete results has this American investment in the development of Finnish medicine brought? Since there are now five medical faculties and one university for veterinary medicine in Finland, it is impossible to cite more than a few examples of schools of research created by Finnish scientists whose post-graduate training or research were not financed by the United States.

Examples of Finnish-American Collaboration in Medicine

The School of Developmental Biology. The Finnish school of developmental biology is a good example of a research tradition with roots in the pre-war German scientific world, but whose subsequent development has been decisively influenced by American scientists and a close collaboration with them.

Professor Gunnar Ekman (1883—1937) received part of his post-doctoral training in Germany and was deeply impressed by the work of Hans Spemann and his group that explored the early development of amphibians by ingenious transplantation experiments. They were the first to show the morphogenetic interaction between embryonic tissue anlagen, and they coined the word embryonic "induction" for this. After his return to Finland, Ekman took up this method and performed a series of experiments that further elucidated these early control mechanisms.

After Ekman's early death, his only student, Professor Sulo Toivonen, continued his work with remarkable success, developing the concept of two induc-

tive principles in 1940. Together with his student Taina Kuusi, Toivonen started fractionation experiments to characterize further the active molecules involved in induction. In 1954, Lauri Saxén joined the group, and this collaboration led to the establishment of the "two gradient hypothesis" and, subsequently, to its experimental proof in the years 1955—1968.

It soon became evident, however, that there were problems connected to embryonic induction that could not easily be analyzed in the amphibian model-system of Spemann, Ekman, and Toivonen. Meanwhile, Clifford Grobstein, first at the N.I.H. and later at Stanford University, had developed a most promising model-system for tissue interactions in mammals. He had succeeded in separating the interactive components from mouse embryonic kidney. He also showed that these interactants can be separated with a porous filter, a technique allowing an exact timing of the process. To import this new technique to Finland, Saxén spent 6 months in the laboratory of Grobstein in 1959 and, upon his return, started experiments together with Tapani Vainio (1930—1965). Since 1960, this model-system has been the main focus of a growing team that first worked at Toivonen's laboratory, but moved in 1966 to the new building of the Department of Pathology where Saxén was appointed a Research Professor. Since that time, with support from the N.I.H., the Damon Runyon Memorial Fund, and various other foundations, research has been carried out on the following topics: the acquisition of viral resistance during kidney development, ultra-structural changes during early kidney development, changes in isozyme patterns during the above development, cell relations between the inductor and the responding tissue, changes in the composition of the extracellular matrix following induction, vascularization of the metanephric blastema, and changes in the DNA synthesis and cell generation cycle after induction.

Throughout these studies, the group has been in close contact with many scientists abroad. Over the past years three senior American staff members have spent their entire sabbatical years in the laboratory. In addition, many shorter exchanges have taken place, and many collaborative projects are still in progress. Of the members of the team, five have continued their post-doctoral training in the United States for one or two years, mostly sponsored by the N.I.H.

*Lauri Saxén
Department of Pathology
University of Helsinki*

Etiology and Prevention of Atherosclerosis. Research concerning the complex connections between life-style and atherosclerosis in Finland dates back to the 1950's. It was Dr. Martti Karvonen who, in collaboration with Dr. Angel Keys from Minneapolis, demonstrated in an extensively quoted Seven Country Study that Finns have a higher incidence of coronary heart disease than perhaps any other nation in the world. These observations gave rise to several new research projects dealing with the etiology and prevention of atherosclerosis.

One of the best known groups working on the basic mechanisms of coronary heart disease is headed by Professor Esko Nikkilä, Chairman of the Third Department of Medicine, University Hospital of Helsinki. Although he received his training in Finland, Professor Nikkilä adopted the practice of sending his students to the United States, usually after they had received their M.D. and Ph.D. degrees in Finland. Thus, Tatu Miettinen, now Professor of Medicine at the University of Helsinki and a well-known expert in cholesterol metabolism, was trained at the Rockefeller Institute. Similarly, Professor Jussi Huttunen, currently the Director of the National Public Health Institute of

Finland, studied lipoprotein metabolism for two years at the University of California at San Diego. Other scientists active in basic atherosclerosis research who spent one or two years in the United States with the support of N.I.H. or ASLA fellowships include Dr. Christian Ehnholm (University of California at San Diego), Dr. Marja-Riitta Taskinen (University of Cincinnati), Dr. Veikko Koivisto (Yale), Dr. Tapio Nikkari (Rockefeller Institute), and Dr. Antero Kesäniemi (University of California at San Diego).

Several other Finnish groups with close ties to American institutions have been busy in studying the etiology and prevention of atherosclerosis. Professor Martti Karvonen, Professor Osmo Turpeinen, and the late Professor Paavo Roine studied the characteristics of the Finnish diet in relation to coronary disease. As a part of these studies Karvonen and Turpeinen conducted the well-known "Finnish Mental Hospital Study" that strongly suggested that saturated fats play a role in the development of coronary heart disease. The same researchers were also the initiators of the world-famous North Karelia Project, a comprehensive community program for control of coronary heart disease. Professor Pekka Puska, the director of this project, has also developed close contacts with American investigators working in the same field. For instance, his latest studies concerning the effect of a "Mediterranean" diet on the risk factors of coronary heart disease in North Karelia, were carried out with the support of and in collaboration with the United States Department of Agriculture.

It has been the rule in the field of atherosclerosis research that the close ties born during the N.I.H. and ASLA fellowship years have been maintained and further strengthened after returning home. Reciprocal visits have become a routine practice, and numerous collaborative papers have been published during the years. Although it was the Finnish side that gained the

greater benefit from the exchange programs in the early years, the situation has lately become more balanced. It is not unusual today that problems important for American colleagues are solved by studies conducted in Finland as a collaborative effort. Such cooperation is natural, as many of the features typical of the Finnish health care system make Finland an ideal country for controlled clinical trials and long-term follow-up studies.

Jussi Huttunen
National Public Health Institute

Environmental Health Science. In order to fill the post-war vacuum in the basic medical sciences in Finland, the Rockefeller Foundation offered six post-doctoral fellowships in the U.S. for young physicians interested in research. I was one of the fortunate recipients.

I was admitted to the internationally famous laboratories of physiology directed by Dr. A.C. Ivy in Chicago in 1948. The fellowship was extended for another year, which gave me the possibility to become acquainted with a new field of medicine, clinical physiology at the Mayo Clinics.

Given a complicated topic to explore, the mechanism of drug (cinchophen) induced peptic ulcers, I was led to an entirely new trail of research after my return to Finland in 1950: the biotransformation of foreign substances in the body.

Being aware of the difficult working conditions in Finland, the Rockefeller Foundation established five special fellowships there in the following departments: anatomy, physiology, medical chemistry, pharmacology, microbiology and pathology. My receipt of one of these fellowships meant that my career as a clinician was interrupted, but also that in 1954 as a result of my research I was elected as the first professor of physiology at the new medical faculty in Turku.

Once again, however, I was faced with cold realities:

a large, new department with 70 rooms but practically no equipment. Once more The Rockefeller Foundation came to my aid. They asked me to work out a list of the most badly needed equipment. They then supplied these, and work could be continued.

My experience at the Mayo Clinic proved especially valuable in setting up a cardiovascular research unit as well as a sports research unit. In this way clinical physiology began to serve the University Clinics. In addition to modern diagnostic services, the first open heart operation in Finland was performed as a result of this progress.

But in the early 1950's Finland still suffered from a lack of basic needs: food, clothing and housing. The country also had to pay war reparations. Obviously the problems of young scientists were not on the top of the national agenda. Homes and work for over 500,000 refugees from the lost areas of Karelia had top priority.

Crucial help came from the United States. My first application for a project grant from the N.I.H. was accepted and a three-year program fully financed on how the human body's biomechanisms can handle foreign substances such as tobacco smoke, industrial solvents, and chemicals. Since that time my group has received continuous support over a period of twenty-one years. This generosity has resulted in 22 doctorate theses out of a total of 46 in our department, in over 500 publications in international journals, and in the creation of a large group of experts, many of them holding academic or clinical chairs throughout Finland.

Kaarlo Harttala
Chancellor
University of Turku

On Finnish Collagen Research. The intercellular matrix surrounding cells of the human organism consists of fibrous proteins, the most important being collagen and

of jelly-like ground substance that consists of sugar compounds known as proteoglycans. Biochemical research on the structure of connective tissue, i.e. on collagen and proteoglycans of the matrix, is on a high level in the Scandinavian countries. Instead of mutual competition, interesting specialization has taken place in the field: the Finns are known for research on the chemical properties and metabolism of collagen, the Swedes for those of proteoglycans.

There are two basic directions in the Finnish research on collagen. The pioneer of the field is Professor Eino Kulonen of Turku University, who, after completing his Ph.D., started his studies on collagen at Alfred Dortman's laboratory in Chicago in the early 1950's. His first important contributions were the characterization of acidsoluble collagen and the demonstration of its similarity to insoluble tissue collagen. After returning to Finland, Professor Kulonen gathered and developed a strong connective tissue research team at the Department of Medical Biochemistry, Turku University. This team has clarified changes in the collagen structure during evolution and in the various phases of development of experimental granuloma that resemble normal scar formation. This team initiated the studies of Risto Penttinen, presently Associate Professor of the same department, who, after working with George Martin at the N.I.H., started biochemical research on congenital connective tissue disorders in Finland.

A slightly younger line of research on collagen is being conducted by Kari I. Kivirikko at the Department of Biomedical Chemistry, Oulu University. Professor Kivirikko started his work on collagen at the Department of Biomedical Chemistry of Helsinki University at the end of the 1950's and completed his thesis on hydroxyproline in 1963. Soon thereafter he moved on to Professor Darwin Prockop's laboratory in the United States, which he has subsequently often

visited as a guest scientist. Intensive collaboration with Professor Prockop directed Kivirikko's interest to studies on the biosynthesis of collagen, especially on the characteristics of the enzymes needed in this synthesis. In 1972, Kivirikko formed his present team at Oulu.

Connections of the Finnish collagen scientists with American scientists have been multi-faceted. In addition to the Finnish pioneers in the field, more than 20 other Finnish connective tissue scientists have done post-doctoral work at American laboratories. There is continuous collaboration of Finnish scientists with laboratories in the United States. Grants from the U.S. have also been available for research in Finland. In recent years in addition to those traditionally involved, collagen has also attracted the interest of other Finnish scientists such as developmental biologists and scientists who study fibronectin. One of the characteristics of the Finnish collagen research is its close connection to clinical medicine. In Finland there are good possibilities for collaboration of this kind between researchers of the basic sciences and clinicians. The latest trend in the Finnish collagen research is to make the most of the possibilities created by the recombinant DNA techniques. In the past few years, five scientists have visited the United States to become familiar with this technique for collagen research.

Collagen research has a strong position in Finland. In two of the country's five departments of medical biochemistry it is the main line of study. In addition, some research connected with collagen is done to some degree in two other departments and at several institutes in other fields. Kivirikko has been a Research Professor of the Academy of Finland for seven years. When his term is over in the fall of 1983, the operation of a mutual research unit of the Academy and the University of Oulu will begin. The focus of this research project, thus far unique in Finland, will be the biochemistry of collagen.

Finnish research on collagen is held in high esteem internationally as demonstrated by the fact that in 1982, Professor Kivirikko was the only Finn on the list of the world's 1000 most quoted scientists. This list also included six collagen scientists from other countries.

Leila Risteli
Department of Biomedical Chemistry
University of Oulu

Studies on Bursa of Fabricius and on Reactive Arthritis. The two subjects mentioned in the title have intrinsically little in common, but they have been placed together to show the wide variety of scientific interests that developed as a result of the two years we spent in the United States. In 1969–71 we were studying and doing research under the leadership of Dr. Robert A. Good in the Departments of Pathology, Medicine, and Pediatrics at the University of Minnesota in Minneapolis. The first day of our stay, which was sponsored by international post-doctoral fellowships of the United States Public Health Service and the American Association of University Women, coincided with a press conference on the first successful bone marrow transplantation performed on an immunodeficient child. We were thus immediately placed in the midst of international scientists and science.

A special feature of the work in Minneapolis was the close correlation between clinical work and highly specialized basic research. Two weekly meetings, the Saturday morning rounds with main emphasis on clinical problems, and the Thursday evening immunobiology seminars with scientific presentations, illustrated this. The meetings always provoked questions, e.g., on the basis of the various

immunodeficiency syndromes, and they were approached using experimental set-ups. We started a study on the development of antibody-forming cells using chickens as experimental models, since birds have a special organ, the bursa of Fabricius, where this maturation process takes place. On the basis of these experiments, we were able to define different maturity degrees in the development of antibody-forming cells. Later studies in Finland permitted us, in collaboration with American and French colleagues, to demonstrate that the origin of the lymphoid cells is not in the yolk sac as was believed earlier, but within the early embryo itself. The studies also elucidated the complex rules in the cellular collaboration required for effective defense against infections and malignancies.

With a medical background we always have had a clinical touch in our research, even with the chickens. This clinical bent led our interest into reactive arthritis occurring after infection with *Yersinia* bacteria. We observed that a characteristic feature in the development of arthritis was vigorous production of certain antibodies that are mainly present in the secretions for the protection of mucous surfaces. This observation opened the way to a new project on the etiopathogenesis of inflammatory joint diseases.

Our research and that of 20 younger colleagues has been supported during the past ten years by two three-year contracts from the National Cancer Institute, in addition to Finnish sources. These contracts have helped to renew and expand the scientific contacts initiated during our years in Minneapolis. Indirectly they have also made possible the post-doctoral training we have been giving to colleagues coming from Japan and Poland. Moreover, they have helped us to start bone marrow transplantations in the Turku University Hospital for the treatment of acute leukemias and aplastic anemia. In this way these contracts have been a great source of inspiration not only to our group but

also to several other colleagues in our University, and we believe, in all of Finland.

Paavo Toivonen
Department of Medical Microbiology
University of Turku
and
Auli Toivonen
Department of Internal Medicine
University of Turku

Organ and Tissue Transplantation. Critical Mass, well-documented in nuclear physics, may also apply to the biological sciences. In 1954, when J. Murray and H. Harrison performed the first renal transplantation in man, David Hume, Roy Calne and Edward Thomas, later pioneers of cardiac, liver and bone marrow transplantation, were assigned to the staff of Peter Bent Brigham Hospital in Boston. These clinical developments forced immunologists to pursue the analysis of "rejection" and were probably one reason why immunological research, in particular transplantation immunology, was dominated by American scientists during the subsequent two decades.

In the 1960's and 1970's several Finnish scientists currently holding the rank of professor or associate professor were assigned to the Wistar Institute of the University of Pennsylvania, one of the world centers of virology, cancer research, and transplantation immunology. As a consequence, modern trends in these areas of research were rapidly transferred to and implanted in the fertile, although hitherto little exploited soil of the University of Helsinki.

This development was especially pronounced in the field of organ transplantation. Shortly after the return

of Professor Pekka Häyry from the United States in 1970, a new immunobiological research unit was established at the Department of Pathology. This unit had several close links to many institutions in the U.S., including the Peter Bent Brigham Hospital, Harvard University, the University of Pennsylvania, Duke University and the Medical University of South Carolina. Common projects led to several joint publications in leading medical journals and finally to independent financing from the National Institutes of Health. Along with three separate contracts and two grants from the N.I.H., the unit developed into an independent institution of 25 scientists and technicians.

Currently, Transplant Center Helsinki is the third largest kidney transplantation unit in the world and by far the largest in Europe. In contrast to most other institutions, this department performs most transplants from cadaveric (dead) donors, which are more difficult to handle, and still achieves a remarkable success rate of approximately 75 %. New clinical approaches include bone marrow transplantation in the treatment of leukemias and in transplantations of the liver.

The sizable research program supporting this clinical activity has led to many original discoveries in the field. Some of the very basic biological approaches in transplantation immunology, including the "cell mediated lysis" (CML) reaction and the "primed lymphocyte typing test" (PLT), were first designed by investigators of this department. Later developments include a new, atraumatic method for the continuous monitoring of events inside organ allografts after transplantation. This technology, based on aspiration cytology, has been adapted by many other major transplant centers in the world.

It is hardly conceivable that these developments would have taken place without collaborative programs with American research institutions and substantial financial support from the United States. The benefits

are also bidirectional. The transplant units trained in Helsinki for the modern monitoring of organ allografts have included several Americans, and increasing numbers of American academic personnel in the field of organ transplantation have decided to challenge the

midnight sun and take their sabbatical leave in Helsinki.

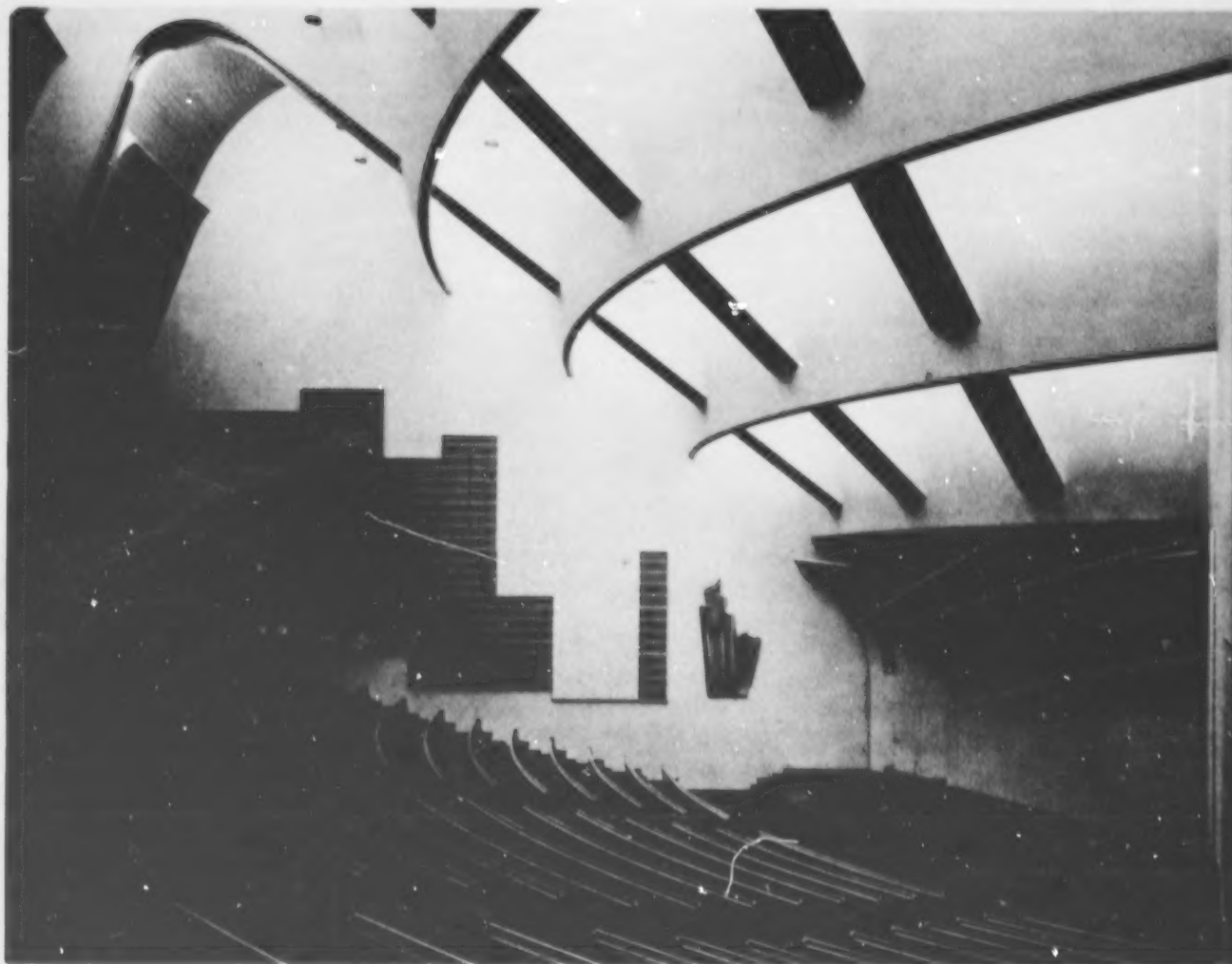
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*Pekka Häyry
Transplant Center
University of Helsinki*

*Helsinki University of Technology, Espoo, Otaniemi, 1953—/60—61 ; 62—64. Main building, main lecture hall.
Architect: Alvar Aalto.*

The main lecture hall of the university is a characteristic sky-lit amphitheater space of Aalto. The roof shape has a double function — on top of the hall there is an outdoor amphitheater arrangement.

Photo: Ingervo



Physics and Technology

JORMA ROUTTI

Department of Technical Physics

Technical University of Helsinki

The last decades have altered the economic and social structure of Finland in a fundamental way. An earlier agrarian society has transformed itself into a modern society where the industrial and service sectors play dominant roles.

These changes and the resulting wealth have been largely brought about by the significant expansion of traditional Finnish industries, typically based on domestic natural resources, especially the large forests, and on local consumption, as well as by the formation of many new industries. The new fields include metal industries producing paper machinery known all over the world, shipyards building icebreakers, luxury liners and some of the finest sailing boats anywhere, metallurgical industries with many new processes invented in and exported from Finland, mining and construction industries with important export activities, and chemical industries including oil refineries, petrochemical plants and fertilizer manufacturing. The further development of these basic industries is still continuing, and this enables them to expand their production and to maintain their competitive position on the world markets.

More recent developments that are constantly gaining momentum include the development of Finnish high technology industries and innovative know-how organizations for the domestic as well as the export market. These developments often follow patterns that have become familiar in the United States. Such high technologies are based directly on discoveries in physics, chemistry, biology, and the information sciences. Very often their development in Finland has profited greatly from extensive scientific contacts and collaboration with American universities and research institutes.

Modern physics and technologies based on its discoveries have their roots in the early decades of this century. The theoretical foundations of quantum and relativity theories, early atomic and nuclear physics,

and information and communication processes were largely discovered by scientists working in Europe. This situation and the proximity of the European centers oriented the Finnish scientific community toward Scandinavian and European contacts.

The period during and after the Second World War produced a fundamental change in the balance of science and technology between Europe and the United States. Science and technological development were successfully brought together in large American projects during and after the war. Big science was born, and it started to produce new discoveries and technological marvels. Nuclear physics laid the foundations for producing nuclear energy from fission reactors and the still on-going search to tame the fusion reactions that fuel our sun. Solid state physics invented the transistors and integrated circuits that have made it possible to develop computers of ever increasing performance and decreasing size and costs. Communication and information networks using space satellites now span the globe.

These developments gave the United States a scientific hegemony that only recently has been challenged by Europe and other continents. In technology very similar patterns can be observed.

These developments also had a profound impact on science and technology in Finland. The pre-war ties with European countries were largely broken. Fortunately, new avenues for study and collaboration were opened with American scientists and institutions. These possibilities have greatly accelerated scientific progress in Finland, and in many cases they have developed into lasting collaboration of mutual benefit.

The large number of trips made to the United States for purposes of study, as well as the resultant scientific collaboration, can be seen in the responses to the inquiries made to Finnish university professors. The percentage of contacts is among the highest in physics

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and the fields representing modern technologies. These numbers are further increased by the more recent graduate and post-graduate students who have gained valuable experiences at American universities and research institutes. The exchange programs provided by ASLA and Fulbright fellowships have been very important in these fields. They have been augmented by a great number of other arrangements, such as private foundations and government funding agencies both in the United States and Finland, teaching and research assistantships, and visiting professorships at American and Finnish universities as well as individual arrangements by the persons concerned.

I have personally had the privilege to do my doctoral studies at the University of California, Berkeley with the support of the American-Scandinavian Foundation and Fulbright fellowships, and later to participate in the marvellous program offered by the Eisenhower exchange fellowships.

My purpose here is not to make a comprehensive survey of the exchange between Finland and the United States in the many areas of physics and technology. Rather, I have chosen some representative fields as examples.

Theoretical Physics

One of the most striking examples of rapid advance in Finnish science has been the development of theoretical physics. Starting from a quite modest level in the 1950's, this field in Finland received three types of significant impetus in the following decades. First the Finnish Atomic Energy Commission decided to include this field among those receiving support. Then the research institute NORDITA was established in Copenhagen as a joint effort with the other Scandinavian countries. These two efforts opened up the most important channel of all, the constant flux of

Finnish scientists and graduate students into the most highly ranked universities and research centers in the United States. The names of these institutions include Princeton, Harvard, M.I.T., Cornell, Berkeley, the Argonne National Laboratory, and many others.

There are now about 50 Finns who hold doctorates in theoretical physics. A majority of them have spent extended periods in the United States. Financing the numerous expenses connected with living a year or two far from home, perhaps with a large family, has been decisively aided by the American exchange programs and scholarships. More and more, the visits have also been made possible by the increasing numbers of American friends and colleagues who have found room at their universities in the form of faculty positions or research grants to employ one more Finnish theoretical physicist. These contacts have also resulted in visits by U.S. physicists to Finnish universities.

A concrete example of the rise of theoretical physics is the Research Institute for Theoretical Physics at University of Helsinki. Established in the 1960's, it is now well known for research in elementary particle physics, nuclear theory, statistical physics and laser theory. Perhaps it is no accident that at this very moment the director of the institute, Professor Stig Stenholm, is on a visit to the University of Arizona to do research in laser theory.

Nuclear Physics and Nuclear Energy

Finland currently produces about 40 % of its electricity from nuclear sources. This percentage is one of the highest in the world, matched only by France, Sweden and Switzerland. Lack of fossil fuels and a limited hydropower potential, as well as an economy with energy intensive industries and high heating demands in the cold climate, have made nuclear energy a natural choice for Finland. Nuclear techniques have also found

a large number of fruitful applications in Finnish industry, environmental studies, and medicine.

The contacts and collaboration in these fields with the United States have always been very important. Major discoveries in nuclear physics were largely based on efforts originating in the United States. The release of earlier classified information by the Eisenhower Administration accelerated development in other countries.

A large number of scientists in related fields have spent extended periods at American universities and research laboratories. One example is the long established collaboration in heavy ion nuclear physics with the Lawrence Livermore Laboratory at Berkeley. This cooperation resulted in discoveries of new elements and isotopes in addition to the training of many of the key professionals in today's Finland.

Finnish education and research in nuclear energy have also been based on American know-how. An American Triga research reactor was acquired by the Helsinki University of Technology in 1962, and it has continued to be a very active center ever since. The fuel management and safety studies of nuclear reactors originated in the United States, and they continue through active participation in the American programs.

An important contribution has been provided by the nuclear research reports received from the United States. This service has continued for three decades, and it has helped Finnish scientists keep up to date in this rapidly developing field.

Computers and Information Science

The development of modern computers and microprocessors has been one of the amazing success stories of the past few decades. New electronic wonders have developed out of the early theoretical models and cumbersome computing machines. The technological

lead in this field has remained in the United States, and American contributions to computer development in Finland have been of decisive importance.

Finland began to acquire modern computers shortly after they became available; very often they came from the United States. The pioneering machines of the early 1960's, the Univac 1108 in the early 1970's, and a number of DEC and Cyber computers in the late 1970's have formed the basis of the computer centers at Finnish universities. The new distribution system no longer permits ready accounting of their different applications, but they are very numerous indeed.

The art of computer programming and application was first mastered by Americans. Many Finnish scientists in this field have obtained their special training at American universities, and many continue in close collaboration with them. The first computer program for automatic pagination of newspapers and other printed products was developed by professor Hans Andersin while working in the United States. The theories of associative memories and their applications to speech recognition by computers are being actively pursued by professor Teuvo Kohonen and his team at the Helsinki University of Technology, and they have gained wide international recognition. There has been active Finnish collaboration in related brain research with scholars such as Nobel Laureate Leon Cooper at Brown University.

Low Temperature Physics and Technology

Finland is well known for its severely cold climate. Low temperature physics would thus seem to be a natural choice of study, although, of course, when one seeks the proximity of absolute zero, a low ambient temperature does not really help. Low temperature physics, however, has proven to be a good choice in Finland for other reasons. It represents a field where a small country can afford to build and acquire the best

equipment, while training competent research teams to run them.

Professor Olli Lounasmaa's Low Temperature Laboratory at the Helsinki University of Technology is well known throughout the world to scientists in this field. The basic research, including the lowest temperatures achieved anywhere, as well as many applied projects, have gained international renown. Recent studies have also produced advanced medical instruments, in particular nuclear magnetic resonance tomographs using superconducting magnets. This research has benefited from continuous and close collaboration with American laboratories. Professor Lounasmaa and many of his post-doctoral students have spent extended periods at American universities. Symbolic of such collaboration has been the election of Professor John Wheatley from the University of California at San Diego to honorary membership in the Academy of Finland.

Aviation Industries

Ever since the wonderful flying machines of Orville and

Wilbur Wright, the airplane and aviation industries have been successfully reducing the size of our globe as measured in travelling time. The American hegemony in this field has been dominant, and it also extends to space research.

The remote position of Finland in Northern Europe used to hamper scientific and other contacts that required lengthy travel. This handicap has been largely eliminated by air travel, in particular by the frequent connections Finnair, the Finnish national airline, maintains with Europe, the United States, and other continents. Most of the aircraft flown by Finnair was manufactured by McDonnell-Douglas — from the legendary DC-3 to intercontinental DC-10 jets. The technological infrastructure required by modern aviation has also gained much from American sources.

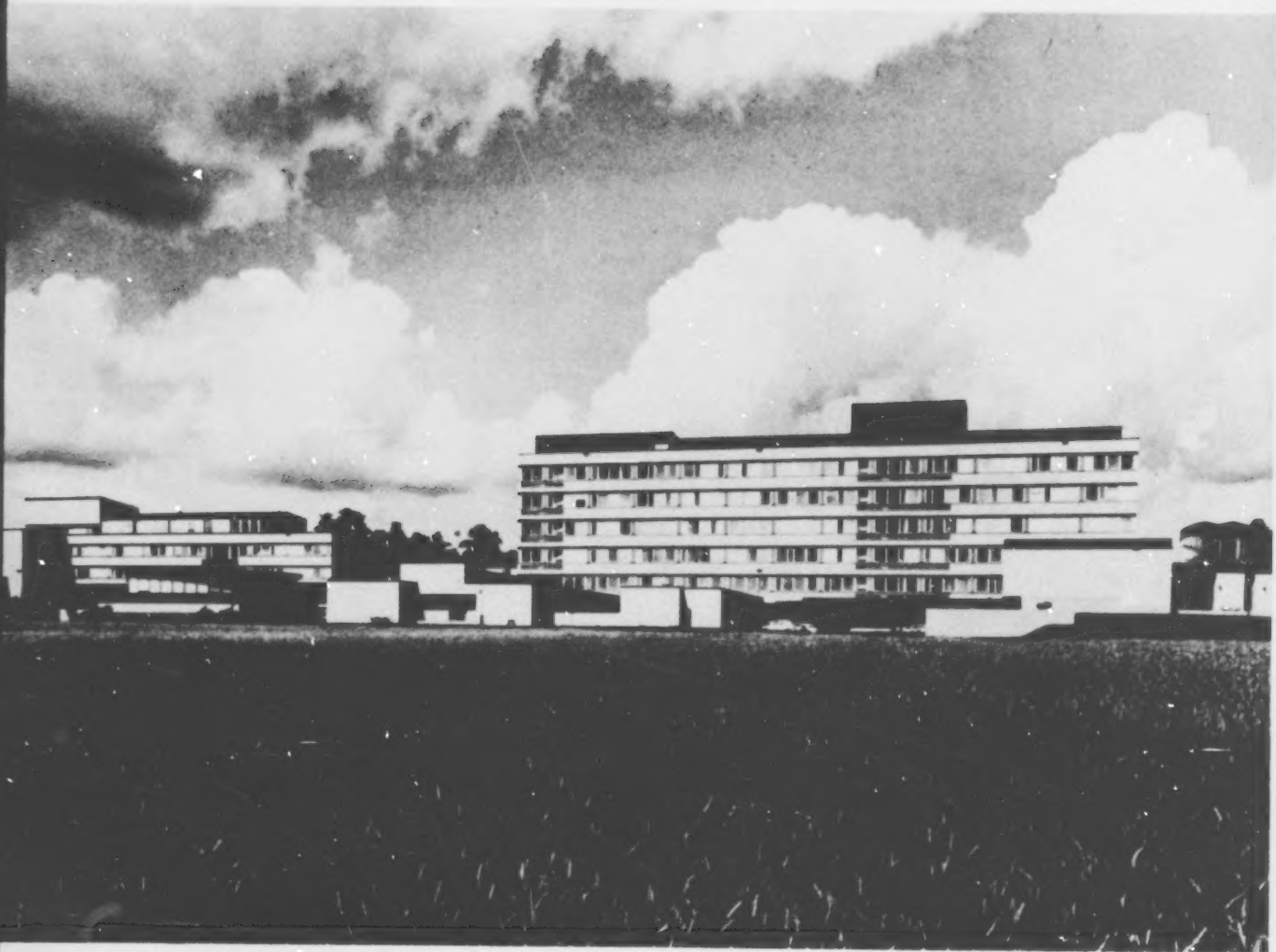
American wings have thus been very important for the Finnish aviation industries. And, in conclusion, it is fair to say as a general proposition that American wings have played a central role in helping many fields of physics and technology in Finland to reach the high level which they enjoy today. These contributions are widely and deeply appreciated in Finland.

*Institutes of Agriculture of the University of Helsinki, Viikki, —1967.
Architect: Veli Paaiaela.*

The institute buildings and residential blocks form an open architectural complex adjacent to fields for experimental farming.

The architect was Alvar Aalto's chief Finnish assistant in the design and construction phase of the Baker Dormitories at the MIT in Boston, and distinct influences of the master can be traced in his work.

Photo: Jukka Väisänen



Agriculture, Forestry, and Food and Nutritional Sciences

Agriculture

RISTO IHAMUOTILA

Department of Agricultural Economics

University of Helsinki

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The Finnish scientific tradition in agricultural and silvicultural sciences has its roots in Central Europe, particularly in Germany. After the Second World War, however, the position of the United States as the leading country in agricultural sciences became even more prominent than it had been. The establishment of the ASLA-Fulbright scholarship program signified a decisive turning point for Finnish specialists in these fields who were now able to make firsthand acquaintance with American universities and research institutes.

Since 1949, at least twenty-seven Finnish agricultural researchers have spent at least four months at an American university. Of these, six have made at least two separate trips. The exchange, quite modest in scope at the outset, has expanded steadily over the last two decades. During the 1950's only three Finnish specialists in agriculture had scholarships to the United States. The corresponding number during the 1960's was 13, and for the 1970's it was 17.

Of the thirty-three trips in question, 12 were funded by ASLA scholarships, 16 by scholarships from the Kellogg Foundation, and five from individual American universities. The contribution made by the Kellogg Foundation to the development of the agricultural and food sciences in Finland has been considerable. The specialties represented by the Finnish scholars in these fields who have visited the United States cover a broad spectrum. The largest number of scholarships has gone to specialists in agricultural economics, twelve representatives of which have visited the United States. Specialists studying plant production have received eleven scholarships, while four specialists in animal breeding have been the recipients of scholarships.

There are many universities in the United States with world renowned colleges of agriculture and these have, as might be expected, been popular with Finnish scholars. The most frequently visited has been Cornell

University, where nine grantees have done their research. Five scholarship terms have been spent at branches of the University of California, particularly at the Davis campus. Four have been spent at the University of Minnesota, three at the University of Wisconsin, and two each at Michigan State University and Iowa State University. Other universities that have hosted Finnish specialists in the agricultural sciences include Harvard, Ohio State, Kansas, Pennsylvania State, North Carolina State, and Northwestern. The popularity of Cornell is probably attributable to its wide variety of offerings, as well as to the climate of Ithaca, which is eminently suitable for Finns. Cornell has been particularly popular among agricultural economists; since the mid-1960's half of the grantees in agricultural economics have done their research there.

It should be mentioned that the exchanges in agricultural sciences have been somewhat unbalanced, since only ten American researchers have used these scholarships to visit Finland. These visits, however, have often opened opportunities for their Finnish colleagues to visit an American university.

It is difficult to assess the benefits deriving from the exchange of scholars on a quantitative basis. Nevertheless, it is worth pointing out that of 22 full professors attached either to the faculty of agriculture and forestry at the University of Helsinki or to one of the two state agricultural research institutes, 11 have spent time in the United States on a grant. The pursuit of post-graduate research in the U.S. also seems to have been beneficial. In agricultural economics, for example, a total of thirteen doctorates have been taken in Finland since the second half of the 1960's. Of the people involved, fully eight had spent time in the United States as grantees. The younger generation of Finnish researchers in this field considers the opportunity of learning modern research methods to be perhaps the most useful benefit accruing from their

American experience. Furthermore, the opportunities to learn English in its natural surroundings, as well as to acquire an orientation which is both multidisciplinary and, in many cases, international in scope, are

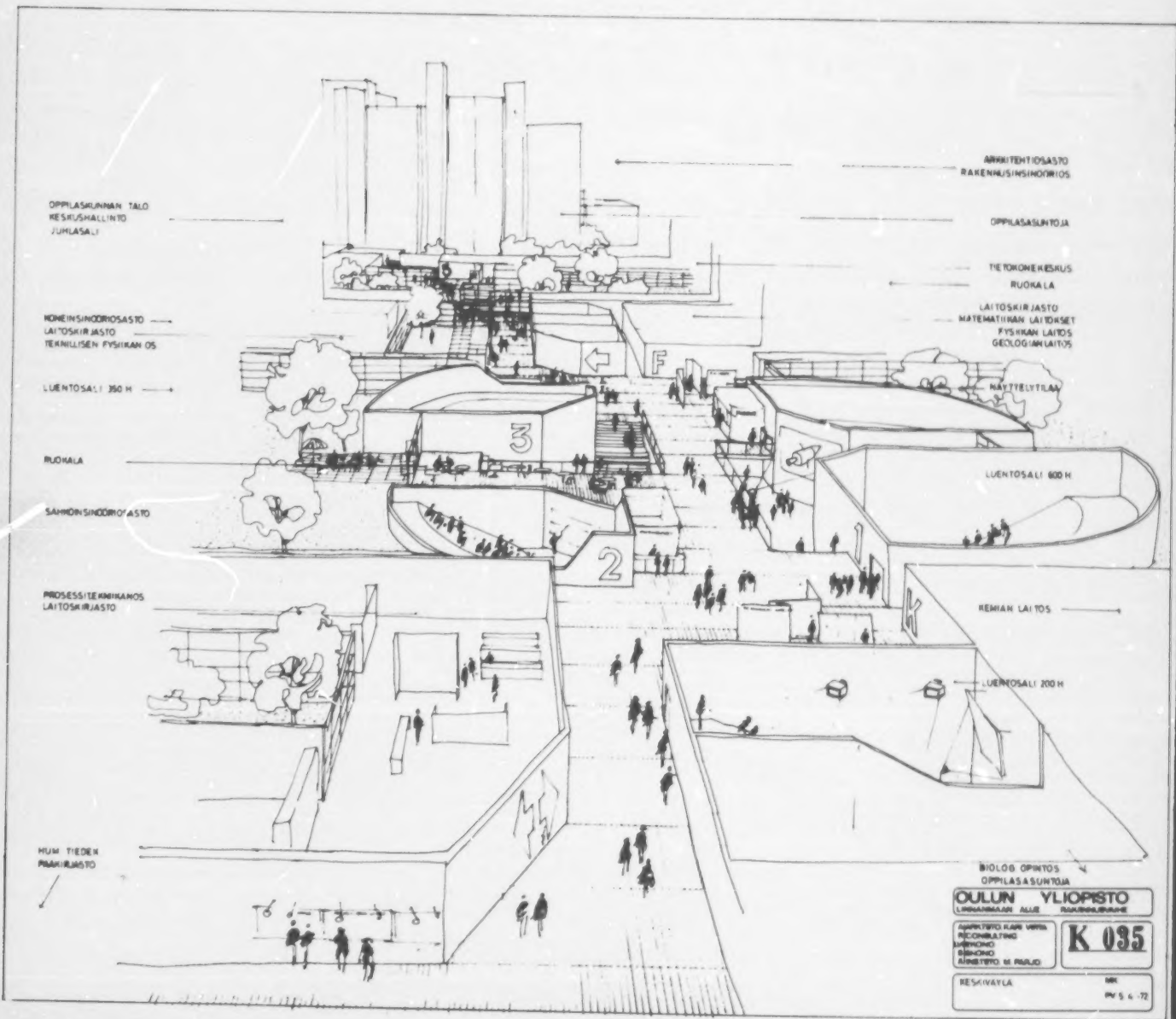
additional benefits whose significance for the development of science and research in a small country cannot be overestimated.

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*The University of Oulu, 1969—
Architect: Kari Virta.*

A determined decentralization of Finnish universities began during the 1960's. The University of Oulu in northern Finland is the result of a Scandinavian architectural competition, and it represents the structuralist tendencies of the late 1960's. Because of the severe climate, the complex clusters around an internal pedestrian street. The buildings have been built of standardized prefabricated components.

Sketch of the central pedestrian spine (roof removed).



Forestry

PÄIVIÖ RIIHINEN

Department of Social Economics of Forestry
University of Helsinki

The Central European forestry tradition was dominant in Finland until the Second World War. Characteristic of this thinking was a rigid adherence to the principle of sustained yield. Forestry was considered as a closed economy, independent of the goal setting of external economies. This tradition was valuable in conserving a resource that could offer several management alternatives once an expansion of the national economy was required.

Soon after the war, Finnish experts realized that this conservative type of forestry, forestry for its own sake, needed reconsideration. It became desirable to expand the forest industries in the interest of the national economy as a whole. Since the timber output required by this expansion threatened to exceed the production capacity of traditional forestry, new thinking was needed to adapt forest management to the increased timber requirements.

Public Law 256 passed in 1949 opened the way for the first Finnish ASLA grantees to the United States. Among them were three foresters, one of whom later became a professor and is now retired. Since then, many foresters with a scientific orientation have had the opportunity to sharpen their professional tools in the United States. Since 1952, when the United States Educational Foundation in Finland was established, there have been seven Finnish ASLA-Fulbright grantees in forestry, 12 Kellogg Foundation granters, and four individuals who obtained short-term grants from other sources in the United States. In addition, there were many other grantees, whose orientation was less scientific, who did not seek research positions. In

exchange, 16 American Fulbright grantees have worked in Finland, seven of them in a post-doctoral research capacity and the rest as graduate students.

Forestry in the United States follows a management approach different from the European tradition. During the last century it may have had certain features of exploitation, but it provided funds for building up the industry now characteristic of the United States economy. For specialists used to a narrow forestry concept, insight into forestry in the United States provided an alternative and stimulated the forging of a compromise between short-term sustained yield thinking and a more ambitious long-term production goal. It became easier to see forestry as but one sector of the national economy, which affects and is affected by other sectors. This represented a more enlightened view than earlier and speeded up efforts to reconsider management habits. Certain aspects of research were also reoriented in order to take the new goals into consideration.

The exchange has been mutually beneficial to the two forestry traditions. It has had an impact both on the general concepts of forestry and on the methods and techniques of research. The relations established between American and Finnish forestry scientists and, in many cases, among a larger group of international research workers, have enabled the creation of a more universal exchange of ideas. Many American universities, in particular, have provided forums for multinational discussion, thereby contributing to the adoption of a more universal professional language of forestry that has lowered cultural and language barriers.

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Food and Nutritional Sciences

PEKKA KOIVISTOINEN

Department of Food Chemistry and Technology
University of Helsinki

90 Finnish food science began early in this century, but its actual growth into a modern multidisciplinary approach has taken place only during the last two decades. The main site of development has been the University of Helsinki. In this development both exchanges with the United States and financial support from American sources have played integral roles.

In the 1950's and 1960's P.L. 480 grants given by the U.S. Department of Agriculture offered a number of training posts in food science. Later in the 1960's the W. K. Kellogg Foundation donated funds for establishing food chemistry and food technology programs. This association was continued in the 1970's when programs in food economics and cereal technology were started. The funds obtained from the U.S. for starting the programs have been essential to the building of food science in Finland into a modern university program. As a result, there are now more than 300 students studying for degrees in the food sciences, which offer nine concentrations: food economics, agricultural marketing, food technology, food chemistry, microbiology, dairy science, meat technology, cereal technology, and nutrition. The

program's impact on the Finnish food industry has been profound.

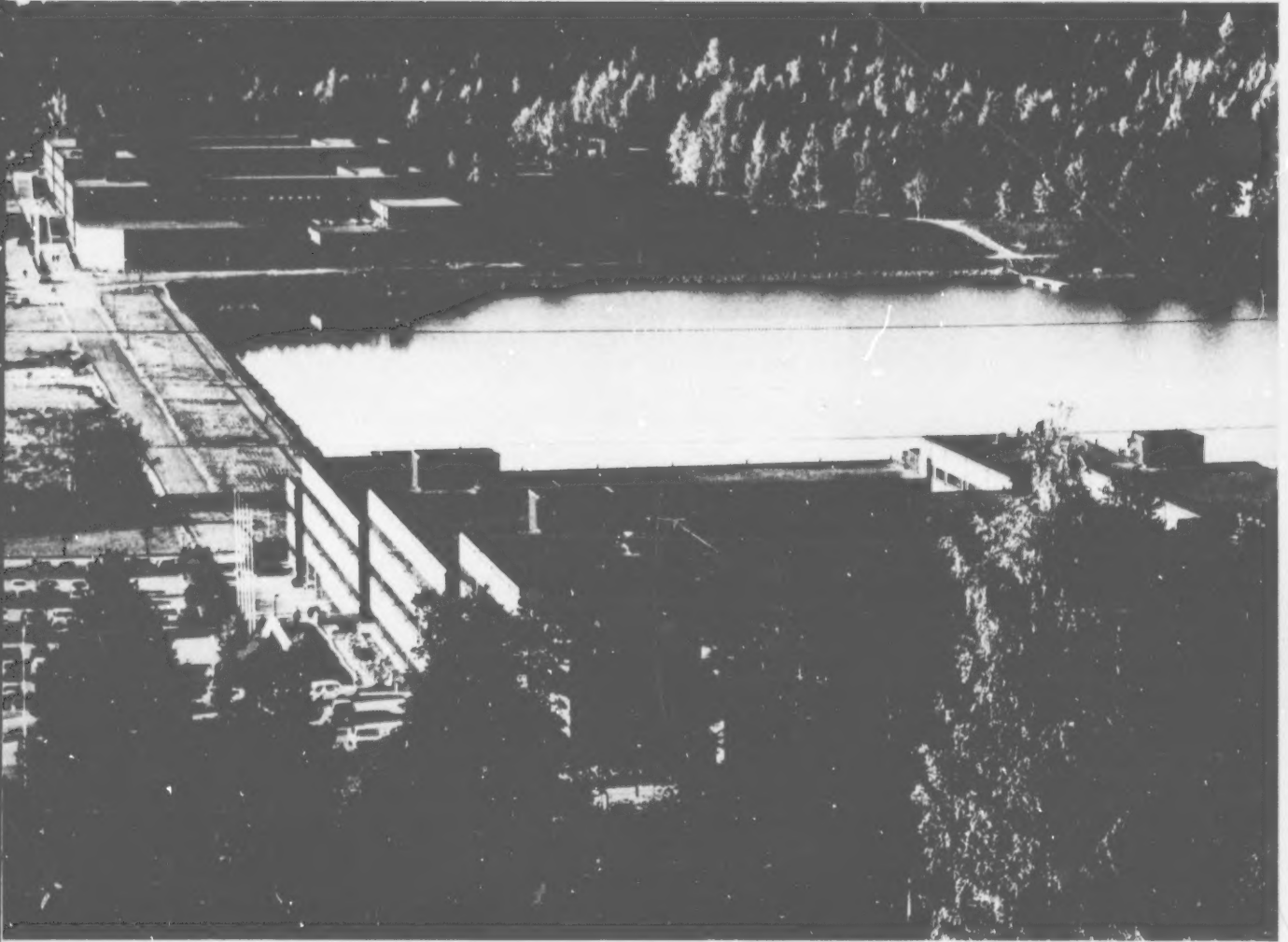
Many of the specialists now working in food science have had the opportunity to visit the United States. In this regard, the role of the W. K. Kellogg Foundation in providing funds has been of major importance. The contacts with American colleagues strongly influenced the orientation and contents of food science in Finland. For example, the inclusion of economics and nutrition into the concept of food science and the combination of the disciplinary and commodity-based approaches come to a great extent from the U.S. experience.

There are now several on-going efforts between Finnish and American institutions and scientists in food science. Joint programs in the areas of food technology, food hygiene, food and health interactions, and biotechnology are examples of recent developments, which involve universities, government agencies, and foundations. Finnish specialists hope that means will continue to be available in the future for maintaining and even expanding the successful exchanges with the United States in food science and nutrition.

*The University of Kuopio, 1972—78.
Architect: Juhani Katainen*

The buildings were conceived as a compact structure utilizing standardized and modulated room units for various functions, as well as prefabrication technique in the structuralist manner which became popular in the 1970's. The repetitiousness of the industrialized system has been softened by the use of brick material.

Photo: Pekka Kuhmonen



Architecture

JUHANI PALLASMAA
State Artist Professor

92 The study of Finnish-American scientific and cultural exchange reported elsewhere in this publication seems to indicate that interchange across the Atlantic in the field of architecture has been non-existent. The amount of academically recorded exchange of scholars between the two countries would not, indeed, grant any significance to Finnish-American architectural relations.

A closer look into recent history as well as into the current situation, however, disproves this impression. As a matter of fact, architectural interaction between Finland and the United States has been surprisingly dynamic. The study does not reveal the flow of influences outside of universities and recorded exchange of scholars. It does not bring forth, for instance, the influence of Eliel Saarinen's European classicism or of Alvar Aalto's dissident modernism on American architecture and design education during the past fifty years. Neither do the records tell about the impact of Richardsonian stone architecture of Chicago at the turn of the century on Finnish National Romanticists — the shapers of Finnish national identity and pride in terms of architectural expression, nor about the impact of the New Bauhaus around Mies van der Rohe at the IIT in Europe, nor the influence of West coast rationalists on the generation of Finnish architects educated during the 1960's. The present writer, for instance, being a member of this generation, was strongly influenced by such California architects as Charles Eames, Craig Ellwood, and Pierre Koenig.

Impulses and inspiration in the field of arts seem to follow a more spontaneous and informal course than they do in the sciences. A single sight of an architectural masterpiece may change the professional course of an architect. Ever since the highly influential Wasmuth and Wendingen publications in Europe on Frank Lloyd Wright's work in the early years of our century, professional stimulus across the Atlantic has been distributed more through publications than

through formal interaction between educational institutions. Today the flux of luxuriously printed publications on architectural trends in the making has become a shared global university.

Many of the most successful Finnish architects of today have lectured or temporarily taught in a number of American universities. Perhaps as many American architects have lectured in Finland under various grant arrangements, leaving their imprint upon the thinking of younger generations. The most significant impulses, however, have to be sought in other forms of interaction.

The non-academic American influence on Finnish architecture ranges from admiration of the purist design of Shaker communities or the American balloon-frame house construction brought back to Finland by emigrant builders, to the influence of American high-tech architecture on Finnish constructivists since the 1960's, or the disputed American Postmodernism of today which has been as a general topic of architectural discussion during the past few years in Finland as it has elsewhere.

One of the most influential individual architects during the last two decades among Finnish architects and their colleagues in other countries has been the American Louis Kahn — who, incidentally, was born some hundred miles south of Helsinki on an Estonian island. And, of course, hardly any architectural student anywhere has observed the charm of Frank Lloyd Wright's architecture without having been deeply affected. The on-going protest against Modernism began in the 1970's in America. The work of Charles Moore and his collaborators was one of the first signals of the changes to come. Charles Moore was deliberately attempting to fuse contemporary expression with the American classicist and vernacular traditions in order to create a genuinely American style of our age.

Paradoxically enough, today Moore inspires the new

regionalists of Finland, graduates of Oulu University in the north, who are, in their turn, attempting to "Finlandize" universally oriented architecture of the industrialized world.

The work of American architects who became internationally known as the "New York Five" and the new Chicago School are today being keenly followed by Finnish architects and students alike.

Exhibition activities of the Museum of Finnish Architecture have helped to revitalize and accelerate interaction between the two countries. During the past decade a number of American exhibitions have been held in Finland and, perhaps, an even greater number of Finnish exhibitions have toured in America. Exhibitions have become, along with publications, a prime media of intellectual exchange in the field of architecture. In addition to exchanging exhibitions, the Museum organized in 1979 a symposium entitled "Europe-America Architectural Dialogue" which discussed the future of modernity and, more specifically, the validity of current post-modernist ideas within the European cultural context.

It is rather self-evident that the United States along with its massive cultural invasion of Europe has influenced Finnish architecture. It is more surprising that a nation of Finland's size has had a considerable impact on American architecture.

Eliel Saarinen, who had already created an international reputation in Finland, emigrated to the United States in 1923 after having won the second prize in the legendary competition for the Chicago Tribune Tower. It is, indeed, one of the curiosities of artistic creativity that the prototype of the American skyscraper of the 1920's and 30's was conceived in Saarinen's forest studio far away from the urban centers of Europe or America. Saarinen's town planning proposals for Chicago and Detroit established a reputation for him as a planning authority. Soon after

having settled in the United States, Saarinen became the President of the newly founded Cranbrook Academy of Art outside of Detroit. In addition to being responsible for its educational orientation, Saarinen also designed the buildings of the Academy, which have recently been described as "one of the most enchanted and enchanting settings in America" by the American architectural critic Wolf von Eckardt.

Eliel Saarinen was almost forgotten even in his native country because his classical background and stylistic orientation did not fit into the modernist orthodoxy. Due to the present re-emergence of classicism, Saarinen's proper role in the history of our century is being studied and established. Today, thirty years after Saarinen's death, the Detroit Art Institute and the Metropolitan Museum of Art in New York are preparing an extensive exhibition entitled "Design in America — the Cranbrook Vision 1925—50" on the impact of the Academy on American design in Saarinen's time. American scholars have acknowledged the decisive impact of the Academy both directly by Saarinen and other teachers and indirectly through a host of its exceptionally gifted graduates, such as Charles Eames, Florence Knoll, Harry Bertoia and Eero Saarinen. Eero Saarinen, who was unquestionably one of the most brilliant and enigmatic architects of his time, made his entire professional career in the United States, but his childhood years in Finland in his father's forest studio could not have passed without influencing his personality. Eero Saarinen's designs enhance numerous American cities and towns, and his Dulles Airport has been declared a national architectural monument.

Also Alvar Aalto, the second Finnish architect of universal stature, had strong connections with America. He was introduced to American professionals and the public surprisingly early, in 1938, through an exhibition of his furniture arranged by the esteemed

Museum of Modern Art in New York. Almost half a century later his memorial exhibition toured in the United States very successfully. Now that modern architecture, particularly the International Style, is being accused of technocracy and inhumanity, Alvar Aalto's subtle, inventive and individualistic design has become one of the main sources of inspiration on both sides of the Atlantic in the search for a new, humanistically oriented architecture.

Alvar Aalto had a direct personal impact on American education as Professor at the Massachusetts Institute of Technology (MIT) from 1946 to 1948. During his stay in Boston, Aalto designed the Baker House Dormitories for MIT which became an important example of organic architecture on the American continent. Together with his students, Aalto developed a scheme for a model town entitled "An American Town in Finland" with the intention of having the town constructed in post-war Finland with funds donated by Americans.

Aalto's design for the Finnish Pavilion at the New York World Fair in 1939 is one of his most powerful conceptions. In his later years Aalto designed an auditorium space for the Institute of International Education in New York, and a library for the Benedictine Abbey at Mount Angel in Oregon. Aalto also participated in the preliminary design phase of the Lincoln Center, particularly of the Metropolitan Opera, but the buildings were executed by American architects.

But Finnish architecture has influenced American architects and architectural schools beyond the work of

these two masters. After World War II Finland was widely recognized as one of the leading countries in modern architecture — this view was strongly promoted, for example, by Sigfried Giedion, the arch-historian of modern architecture. The reputation of Finnish architecture has brought innumerable American scholars, architects and student groups to Finland and this interest in Finnish architecture seems to continue and often grow into mythical dimensions.

More generally speaking, the interaction of originality and external impulses, of national characteristics and universal styles is altogether quite a complex matter. In Finland architecture has had a more significant role in the cultural identity of the nation than, perhaps, in any other western country. Finnish architecture has been frequently praised for its originality and particular adaption to Finnish landscape. In a deeper analysis, however, it proves almost impossible to differentiate the uniquely local elements from the universal stylistic trends. This fusion of national and international ingredients is as complex in the 18th century peasant church of Petäjävesi as in the mystical Finnishness of Alvar Aalto's work. It is equally difficult to name examples of purely American architecture — even Frank Lloyd Wright, the architectural poet of midwestern planes, was strongly inspired by traditional Japanese architecture in his early years.

This brief and unscholarly sketch has attempted to point out some aspects of the fusion of American and Finnish architectural cultures in our century.

Senator J. William Fulbright visits President Urho Kekkonen at Tamminiemi on the occasion of the formal establishment of the Finland-America Educational Trust Fund in October, 1975.



SOME AMERICAN IMPRESSIONS

Remembrances of Finland Fifteen Years Past

MARC TREIB

Department of Architecture
University of California, Berkeley

96 In trying to recall those memories of that first visit to Finland I seem to remember both too much and too little. How to sort out the collected heaps of experiences past, how to redetermine which memories and remembrances go with each visit; these are almost impossible tasks. What had been my first visit, and my *supposed* last visit for at least some time thereafter, became merely the first in a series that still continues; a visit instigating an interest in a people, a culture, a geography, and an architecture which have become a significant part of my life, creative work, and research. While I possibly might have had an inkling that something along those lines would happen, I do not think I really knew just what I was getting into, or the impact it would have on the life which followed it.

The Fulbright grant for graduate study was a vehicle of both escape and arrival. After five years of architectural school in Gainesville, Florida, the graduate year in Finland provided me with an escape from routine, the heat, and a monotonous landscape. The arrival was little short of the announcement of another world.

To be honest I rather doubt that I really knew what I was getting into. Finland had wound its way onto my list of suitable countries due to my linguistic *inabilities* (which precluded certain other Scandinavian countries), my lack of an advanced degree and even of architectural knowledge. In the 1960's Scandinavia maintained an image in the American architectural consciousness as the mythical land of good design, and Finland was on the forefront of the myth. I had seen some few slides of Alvar Aalto's work in an architectural history class, and knowing virtually nothing of other Nordic architecture, I thought I might apply for Finland and give it a try. After all, as they say, the worst thing that could happen is that they give you the grant.

And they did. As the summer progressed and the departure date pulled nearer my anxiety mounted at a

logarithmic rate. The eight day Atlantic crossing to Gothenburg aboard the MS. *Gripsholm* (while proposed to be relaxing) only compounded the existence of the fact that I was here with virtually no knowledge of Finnish nor of what I was supposed to be doing. Some days later we arrived in Helsinki: the magical ferry hardly disturbing the stillness of the south harbor, placid harbor, brilliant in the bright sun even in late August. Through the Market Square — soon to become my favorite single place on earth — to Otaniemi for orientation. On my own for the first time; great intrepidation taking the bus into Helsinki for a film: in French, with Finnish and Swedish sub-titles! No help to be had! My only time abroad had been a brief excursion to Canada as a child — this was my first time living outside of the continental United States.

Particular memories return: first and foremost, those relating to language. What an experience: looking at the shops; their signs; the announcements; the news; those Kafka-like typographic combinations; the shuddering reactions to it all. The alphabet was familiar but the agglomerations of those letters seemed random; or mystical; magical; defying decoding or comprehension. Beautiful pairings of consonants and vowels; dotted words; words longer than I ever could have imagined that words could ever be. And none of it seemed familiar! From first feelings of inadequacy and depression, my interest in language gradually grew. In time we learned in class that there were indeed cognates and words borrowed; but that strange characteristic of the Finnish language — no "initial consonant clusters", as it was called — meant that *school* through *skola* in Swedish became *koulu* in Finnish. The logic was there and rang sensibly enough; but making sense of the words in context was considerably more difficult, however. I worked on it though, and in time, a small portion of the many philological mysteries was revealed.

Of course I had studied language in high school; two years each of Latin and French. But at that time, and perhaps still today, one studied foreign languages as one might calculus — they are both equally abstract subjects. The notion that people might *think* in these languages, have *ideas in these languages*, that language can (and does) channel and direct thought and perception, and that these are often at considerable odds with English — these notions never seemed to cross our collective student minds. This linguistic disorientation and revelation, I see in retrospect, was influential in my intellectual development. For one it stimulated an interest in linguistics as an area of study, and encouraged the acquisition of at least the rudiments of several other languages. But perhaps most important was the realization that a single idea could be expressed (take form) in many different ways, each with a slight shift in nuance and ultimately in meaning. The parallels between language and its communication and those of architecture and design became quite clear — although the correlation is far from one to one.

Of course the Finnish design world was far different from the American sphere from which I had been temporarily removed. Nothing helps the perception of your own world like being abducted from it. As in language, when a thought needs to be conveyed and you become only too aware of its English phrasing (particularly idioms), so too in design. Why do the Finns advertise like this? Does it work? What is sold in what stores? Where do you find a transformer? What is the *word* for transformer, for that matter? "They seem to have all this fancy good design stuff in *every* hardware store." (Arabia throughout the country — amazing, I thought!). The *substance* of Finnish building was striking; double glazing, thick walls; walls thick enough to store your milk inside of them. Few single family houses, and fewer highrises; a consistent pattern of six stories or so. How different from Gainesville or Miami.

Or even New York for that matter.

And what about the commercial patterns? In Finland there were still the multitude of small shops, the cooperatives, or the nearby branches of larger groups which encouraged daily shopping (just as well, as there was no refrigerator in my apartment). Re-establishing personal contact with neighborhood shopkeepers who turned out to be friendly; elderly shopkeepers who miraculously spoke passable English, far better than my limited Finnish. Even in Helsinki, the capital, I was the only foreigner (they told me) who shopped in their stores. In contrast to the prepackaged shopping excursion to the American supermarket, this was a very pleasant novelty indeed. But then, I had the time so I didn't need to worry about efficiency. The bread was dense and incredibly fresh and tasty compared to the airy American white loaves: breads that seemed to willfully change their names between shopping visits. Just as I got to know the name of one, it disappeared from sales. In time I learned *hiivaleipä*, *perunalimppu*, and *reikäleipä* — all fresh, often dense, always delicious. The *perunaleivos* soon became my favorite genre of baked goods — it still is, for that matter, though I vacillate about whether the light or the dark variety is better. Research (and tasting) continue.

Perhaps most of all the Fulbright structure helped to develop a sense of responsibility. What I was to do and when I would do it, and whether I would do anything at all, was entirely up to me. Sounds simple enough, I know, but to an American student who had just emerged from a program of five years of study with virtually no choices of elective course work, the freedom was little short of astounding. At first I compulsively went about my work at a feverish pace, constantly frustrated by being unable to get the necessary material or information at my accustomed rate. Grantees who had stayed on in Finland for a second year, I would guess rather amusedly, allowed me my scrambling,

observing my gradual transition into that pace the country demanded. One still accomplished things of course, but one learned to exchange speed of execution for greater depth — another critical something learned in the process.

Now as I am writing I begin to recall so many things that were brought into my consciousness during that year. Life (and even love) was one of them of course; was it the many winter months or the blossoming of the spring that did it? Hardly matters. In Finland there was the experience of nature and climate in a profound way that I had never known before. I had never come across the landscape and the air in just that way; or they had never come across to me. In Florida each day was more or less the same, and memories of my New York childhood had all but faded completely. In Florida the sun was shining most of the time except for torrential downpours. But in Finland: how cold would it be? How cold can it get? Is there wind? Will it be cloudy *again* today (and *again* tomorrow)? The days grew shorter and were always cloudy (it seemed), one could understand those films by Nordic neighbor Ingmar Bergman and realize that all those stories of the northern winter depression just might be true. Not to me, of course — after years in sweaty Florida, Finland was all an adventure — but to face it year after year, perhaps it just might not be all that grand.

One witnessed the passing of summer — even in August and September that year, still warm and bright with rather long days — into an acutely short but brilliant fall. Fall — one understood the word — with tons (was it?) of multi-colored leaves strewn over every surface. Fall, with colored leaf factories in every park, the birches in particular and maybe some maples chromatically littering Sibelius Park; piles of leaves just daring you to run through the woods kicking them as high into the air as you could, watching them fall like some sort of radiant organic confetti. It was hardly a

new year yet, however. The darkness came on relentlessly; each day, I was told, six minutes shorter than the last. Then the first frost glistened on the park's granite outcroppings, and then came the snow. Snow! Snows! It had been *years* since I had seen snow.

Another lesson learned: that snow is not a thin white blanket silently falling on the unknowing surfaces; that snow generates incalculable volume as the winter wears on; that icicles at the eaves of the roof can be dangerous; and that in cities snow gets dirty and turns to slush all too soon.

Spring did come, however, and everyone and everything brightened as a consequence. Most special of all those colors in perceptual existence is that particularly intensive green that is the common property of those first leaves of spring. What a marvellous sense of space then too: the leaves that sketch the full extent of the tree crown, but leaves that still expose its structure — some sort of modernist architectural ideal. And the long summer, with longer and longer days, and days growing longer, that eroded nights to mere wisps of what they had been. And then finally nights were completely dissolved into nothingness, to only a sunset at midnight. Of course I had to get to the arctic circle to see the midnight sun — and the sun did it: it stayed up with me all night. What I never realized, though, was that the path it took would be elliptical. Nature certainly made itself manifest that year; and nature has never quite been the same since.

Nature also made architecture manifest. One quickly observed that photography of all facades of the building — including the north — was possible in the summer. All you had to do was to wake up or stay up, early or late enough respectively. Finland was an architectural photographer's paradise (not in winter, however; in winter it became one species of photographic hell). And light, that most precious commodity, was a factor that

formed a good portion of Finnish architecture, from the window as a unit to the building as a whole. After a year, those incredibly contrived skylight clerestories and windows that architects like Alvar Aalto had fashioned all made sense; sense not just as willful play, but as expressions of logic at a higher plane than function. The winter taught me that one should build well and indeed I have found that I have been colder at times in Florida (and subsequently in California) than I had been while living in Helsinki. Finland also demonstrated a social attitude toward building so different from the American mode: in Finland one built to last, and built with higher initial cost for reduced maintenance over time. Architecture demanded a regard as a social artifact rather than as a purely economic vehicle.

The circle of architects I met and talked with was young and intense, a group constantly writing and preaching on environmental and architectural quality. I was confronted with an intellectual presentation of architectural ideas that had not existed to the same degree in my own country. (Sadly that balance has somewhat been reversed in more recent days). My interest in Aalto and modern building took me through the country, spending the better part of two months on the road in summer, seeing the modern classics, of course, but becoming more and more enchanted by the medieval stone churches, their timber successors, and the rural wooden folk vernacular. History emerged as the more interesting strain, perhaps because of the social equity acquired and the cultural story that it could tell.

During the year I had seen a few buildings by Lars Sonck, a turn of the century architect whose early buildings are among the finest of the national romantic idiom. Finding little published on his work, I requested and received an extension of my fellowship to visit as many of his extant buildings as I could. This study too

was pivotal. A few years later I wrote an article on Sonck, the first published in English, and became more and more engrossed in architectural Finland circa 1900.

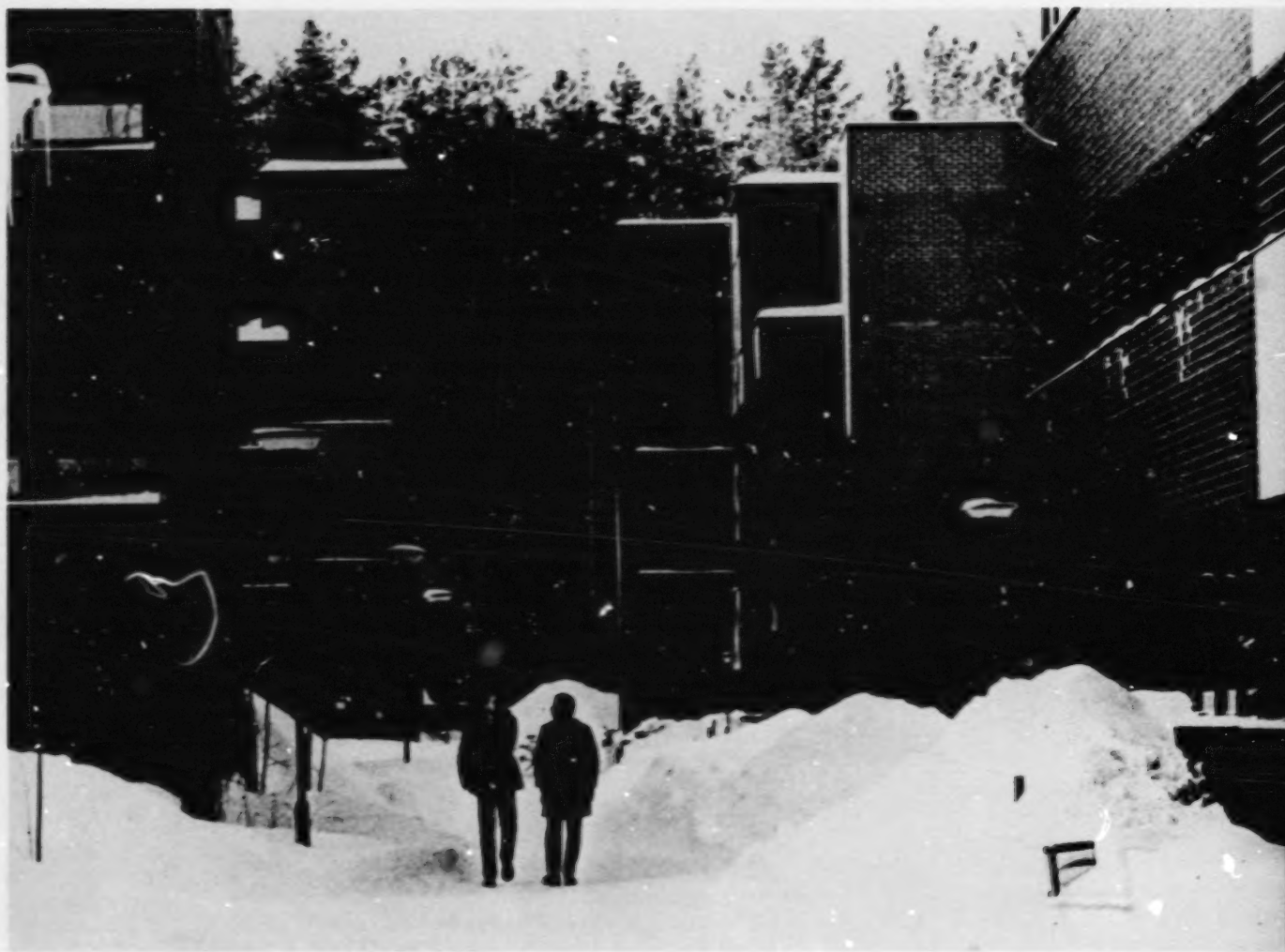
These were some sixteen years ago. My interest and my many friendships have not diminished since arriving in California for graduate study, and for some years thereafter while teaching. I could say that I still had my greatest density of friends living in Helsinki. When time and money would allow, I returned to Finland during the summer months, and on my first sabbatical I spent some four months there seeing as many buildings, new and old, that time would allow, but focusing on the architectural work of the artist Akseli Gallen-Kallela and his circle, about whom I published in 1976. Each visit deepened not only my knowledge of the place, but also my ties with the country.

While my professional and research interests are rather varied, and my historical studies are only a part, Finland has continued to figure rather centrally in both my professional and "normal" lives. What had begun as one short and a one shot year in Finland, and the trip to Europe, turned out to be the beginning of a continued contact that would only intensify over time. This past fall I lived in Helsinki while researching a forthcoming book on the planning work of architect Eliel Saarinen, another member of that late nineteenth century group that was so important in the creation of a Finnish national architecture. At the same time I had the honor to teach at the Helsinki University of Technology at Otaniemi under the auspices of a Fulbright Senior Lectureship, attempting to explain recent American architecture and theory to the current group of architectural students. This series of lectures seemed like a fitting (though only partial) repayment for the major debt I owe the Fulbright program which provided me with an opportunity for foreign study at a critical point in my professional development.

*The University of Joensuu, 1975—
Architects: Jan Söderlund and Erkki Valovirta.*

The University of Joensuu, one of the most recently founded regional universities, is currently under construction. The buildings have a red brick facade, and they utilize certain repetitive architectural features in order to create a visual coherence between the complex of buildings which is set in a forest.

Photo: Simo Rista.



Finland — a Personal Reflection

ALLAN M. WINKLER

Department of History
University of Oregon

When the opportunity arose for my family and me to go to Finland five years ago, I found that I knew very little about that Nordic land. I was aware that it bordered the Soviet Union and had fought a series of wars with its Russian neighbor. I remembered learning in history classes about how Finland had paid its war debt. I had heard of Paavo Nurmi. And I knew that the sauna was a part of the Finnish way of life. Beyond that, though, I knew little more.

After spending the 1973–1979 academic year in Helsinki, I have a wonderful feeling about the city and country both, and can only wonder why I hadn't learned of Finland before.

In the summer before we traveled abroad, my wife and I read as much as we could about Finland, spoke to people who had already been there, and tried to anticipate what we would find. The year more than lived up to our expectations. In all respects it was one of the best years of our lives.

I was to serve as the third Bicentennial Professor of American Studies at Helsinki University, and while I was flattered to be named to the post, I was not really sure about what it entailed. With the help of friendly and able colleagues in the History Department, the English Department, and other parts of the University, I soon began to find my way around. I enjoyed teaching students who did not know a great deal about the United States, and found it a tremendously satisfying experience to have to explain my own country to people lacking the background or common experience my American students had.

But Finland, to me, meant more than teaching alone. Almost as soon as we arrived, I grew to love the land. As an avid runner, I enjoyed the trails that began fifty meters from our house and proceeded for kilometer after kilometer into the thick and rich forest. When the snow came — and we had a wonderful year for snow — I learned how to ski, and spent a part of every weekend for the next three months exploring the

frozen lakes and woods. Skiing became part of my way of life, and I had the satisfaction of completing the 75 kilometer *Finlandia Hiihto* — the Finnish National Race.

And, of course, there was the sauna. I had been in a sauna on occasion in the United States, but had never really learned how to use it the proper way. In our housing complex, we quickly signed up for our weekly sauna time, and the entire family, including our six-year-old daughter and two-year-old son, came to enjoy the entire experience immensely. Even better were saunas with friends, either in their homes in the winter, or in their country places by various lakes when summer arrived.

Helsinki proved to be a marvellous place. It was a city unlike any I had ever known. It was a big and bustling metropolis, yet it was small enough to walk across and to come to know. I felt at home there as I have seldom felt in a large urban region, and quickly grew to feel that it was home.

Last year, three years after we returned to the United States, we finally did something we said we would do when we left Finland — we built a sauna in our own home. With a Finnish stove and a design we remembered from our experience abroad, our sauna is our small bit of Finland back here. It has been a joy in our lives, and has helped keep memories warm.

This past year I was fortunate to have had the opportunity to return to Finland for a week while on a European lecture tour. It turned out, as I expected it would, to be the high point in the trip. It felt wonderful to see old colleagues and friends, to ride the trolleys and trains, to walk through the streets of Helsinki and other cities once more. For that all too brief week, it was as though I had never left. And when it was time to go to the airport to leave at last, I felt the same sense of loss that I had felt as we left five years ago.

Finland remains a very important part of our lives. And my family and I are waiting for the next opportunity to return.

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*Central Hospital of the University of Oulu, —1976.
Architect: Reino Koivula.*

The university hospital has been conceived as a system of relatively low units which are separated by courtyard spaces. Pedestrian circulation has been separated from vehicular and service traffic. The architecture represents the severe, restrained, and modular approach of the 1970's.

Photo: Laukaan Kuvaamo



Reminiscences about Finland

RAY MARSHALL

University of Texas

U.S. Secretary of Labor, 1977—1981

My first exposure to a Finn was Professor Bruno Suviranta, who was a visiting professor at the University of Mississippi in 1954—55, where I was an assistant professor fresh from graduate school at the University of California at Berkeley. Until then, about the only thing I knew about Finland was that they paid their debts. However, Professor Suviranta himself and his discussions of Finnish economic problems made me want to know more about that fascinating country with democratic institutions and a long border with the Soviet Union. I also wanted to broaden my educational experience by spending some time in another country.

My next exposure to Finns was on the six-day trip aboard the *Kungsholm* in August 1955, after being selected as a Fulbright research professor. This was a relaxing and delightful experience because there were a number of Finnish passengers who were willing to help me learn Finnish and tell me more about Finnish institutions. I had some Finnish grammar books and an English-Finnish dictionary, but the closest I could come to finding a Finnish-speaking person at the University of Mississippi was a Latvian, which I later learned is not very close. Most of these Finnish passengers had spent some years in the U.S., so they could help me contrast Finnish and American institutions. It is too bad that air travel has largely replaced ocean voyages, since the latter do a lot to help people learn about each other in an informal and relaxed atmosphere. After arriving in Helsinki, my pace became much more hectic as I tried to learn as much Finnish as possible through an organized class at the University of Helsinki (and constantly pestering Finnish friends, who helped me all they could — probably to overcome my abuse of their language). I eventually got comfortable with Finnish, although it would be inaccurate to say I had learned it. However, on my first trip back to Finland in 1977, I was surprised at how fast the language came back, especially the understanding of people when they

talked. Although not much Finnish is spoken in Mississippi, Louisiana and Texas, where I lived most of the time after returning from Finland, I never regretted the hard work to learn as much of the language as I did. Understanding something of the language made it possible for me to have a better understanding of the Finns, just as my exposure to Finland gave me a much better understanding of Sibelius. In addition, my relationships with Finns seemed to be strengthened because I made the effort to try to learn the language.

My greatest recollections of Finland, of course, came from my efforts to understand their political and economic institutions. As a labor economist concerned with human resource development, Finland strengthened my faith in democratic institutions, as well as my conviction that the real source of national prosperity, stability and viability is in the character, knowledge, and skills of a country's people. I also developed a strong appreciation for the value of international comparisons as a way to isolate principles applicable to many countries from those unique causal relationships based on the history, culture and institutions of particular countries.

Because it is a relatively small and isolated country, Finland provided an exciting and unique opportunity for an economist to study problems in microcosm. I was particularly interested in how a democratic society with few natural economic resources had nevertheless maintained its national autonomy and character despite conflicting influences from a predominantly West European culture and close proximity to the Soviet Union. Moreover, despite few resources, the Finns had managed to achieve a higher standard of living than its physical resource base would suggest. My conclusion was that Finland's strength was in the education and training of its people, and in democratic institutions like cooperatives, trade unions, private enterprises, as well as in a political system that protected the interests of

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different groups while maintaining national unity. I was sufficiently impressed with the value of cooperatives as a way to simultaneously develop physical and human resources that I later helped develop a cooperative movement for low-income people — mainly blacks — in the rural South.

My Finnish experience not only provided insights into the value of democratic institutions, but it also demonstrated the importance of a country's culture and history, as a source of national pride, identification and unity. This unity is, however, not automatic, nor is it always harmonious — it requires leadership by various factions to remind people that the things they have in common are more important than those that divide them.

Finland provided a young American professor access to a higher level of decision makers — past and present — than would have been possible in the United States. In part this was because of the high status of professors in Finland. As one of my Finnish colleagues once put it, as compared with their American counterparts, Finnish professors had half the income and twice the prestige. For whatever reason, the level and continuity of access with decision makers and scholars provided a rare insight into Finland's political, social and economic institutions and processes. I was particularly interested in how Finland attempted to maintain price stability and relatively full employment through a mix of free market forces and public-private and cooperative mechanisms. How to maintain price stability, full employment and free institutions continues to be the key domestic economic problem of democratic societies. We still have not solved the problem, but my study of Finnish institutions strengthened my understanding of the uses and limitations of various approaches to conflict resolution, consensus building and economic policy. Moreover, the subsequent experience of other countries shows the value of investing in human

resources: indeed, there is almost an inverse relationship between the economic performance of countries and their natural resources, as the Japanese experience in the 1960s and 1970s illustrates.

I also learned a lot about the United States in Finland. In part, this is because studying foreign institutions naturally forces comparisons with those in one's own country. But my understanding of the U.S. also was strengthened by the need to explain our institutions to the Finns, who were full of questions about America, where many Finns had relatives. I therefore was asked many questions and invited to lecture on a variety of subjects besides economics. Since I was from Oxford, Mississippi, the home of William Faulkner, I often was asked to discuss Faulkner's works. Since I knew William Faulkner better than I did his writing, I read many of Faulkner's works for the first time in Finland — mainly to avoid being embarrassed by Finns who knew more about his writing than I did.

I also learned to appreciate the unique quality of Finnish humor. For example, in my effort to immerse myself in Finnish customs, I learned to ski a little and tried to become an expert on the sauna, neither of which had much meaning for a Mississippian. However, I approached both undertakings with considerable determination and apprehension, a fact that probably was very clear to my Finnish friends and tutors. When I asked the Finn who was trying to teach me to ski if it hurt to fall, he said "No, it doesn't hurt to fall, but it does hurt when you hit the ground." My greatest apprehension was over the sauna, to which my wife and I ultimately became addicted. But on my first experience in a very hot sauna, on the top shelf and with no cold water or birch leaves, it became clear to me after about fifteen minutes that I probably couldn't walk if I tried. I asked my Finnish host, with what undoubtedly was at least a touch of panic in my voice,

"Say, has anyone ever died in the sauna?" He responded gravely and calmly, "No, not for the record. They always have made it to the door!"

Like most Americans who have spent much time in Finland, I formed an identification with Finns and follow events in that country with great interest. I was therefore very pleased that when I was Secretary of Labor, the Finnish Ambassador, Jaakko Iloniemi, frequently included me in his activities in Washington,

and Finns would tell people that I was the first Finnish-speaking cabinet officer in U.S. history. While it is an exaggeration to say that I speak Finnish, I nevertheless am proud to be identified with Finland. I even bristle when Americans who know very little about Finland speak of "Finlandization" in a pejorative manner. From my perspective, the world could benefit from more Finlands — though my experience assures me that there will never be another country like it.

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The University of Lapland, Rovaniemi, winning project in an architectural competition, 1982.

Architect: Juhani Katainen.

Commissions for major public buildings in Finland are most often awarded through architectural competitions. This also applies to most university complexes and institutional buildings.

The projected University of Lapland is the northernmost university in Finland. Because of the severe climate, various parts of the complex are connected by internal pedestrian corridors.

Photo: Simo Rista

